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TIMOR TELECOM CASE STUDY – TEN YEARS OF EXPERIENCE

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Timor Telecom Case Study: Ten Years of Experience

Dr. Manuel Capitão Amaro, Timor Telecom's CEO since 2007, was once again assessing the final results of last week's negotiations with the Timorese Government. At the top of the discussion were the anticipated cession of the concession contract signed in 2002 and the future of Timor Telecom (TT), the subsidiary of Portugal Telecom (PT) operating in East Timor. The 15 year Build Operate and Transfer (BOT) contract, whereby TT would manage and provide telecom services under an exclusive basis, was going to terminate after only 10 years. Market conditions were going to change with the entrance of two major telecom players in South East Asia. From the top of his office in Timor Plaza, he gathered his team around the table to draft a strategic plan to prepare the company for the great challenge lying ahead.

Prior to 1999: East Timor at a glance

The legacy of East Timor was that its people had always lived under the influence of foreigners. For centuries, this small territory on the eastern part of the Timor Island was under Portuguese sovereignty. The Portuguese Revolution in 1974 brought the independence of the former Portuguese colonies, and East Timor had the opportunity to become an independent nation. However, during the year of 1975, Indonesia moved into East Timor with military forces and declared its annexation. Internationally, the United Nations (UN) never accepted this declaration, which was only ratified by Australia.

The Indonesian occupation lasted for 24 years until 1999. Despite some economic growth and development during these years, the East Timorese population never accepted being governed by their Indonesian neighbours. It is estimated that the East Timorese population was reduced by almost one quarter, during this period due to fighting, forced migration or starvation. The 1990's brought two major significant episodes that could not be ignored by the International Community: the massacre of Santa Cruz in 1991¹ and the two Nobel Peace prizes awarded in 1996 to two Timorese activists².

In 1999, United Nations was able to bring together representatives from the Indonesian and Portuguese Governments. Both parties agreed that the East Timorese people had the right to decide about their future, through a referendum supervised by UN observers. The enthusiasm of becoming an independent nation, and voting for the first time was so strong that an

¹ The Indonesian army executed 201 unarmed Timorese during an independence manifestation, in Dili.

² Ximenes Belo and José Ramos-Horta were awarded with the Nobel Peace Prizes in 1996, due their contribution to a peaceful solution for East Timor.

overwhelming majority voted against “a greater autonomy” proposed by Indonesia in favour of total independence. The abstention rate was almost nil.

Unfortunately, the announcement of the referendum results was followed by terror, violence and widespread destruction by organized militias supported by the Indonesian army. During this period, it is estimated that more than 1.400 people were executed, and 300.000 East Timorese were forced to migrate to the western part of the island, or to the mountains. Moreover, a great part of the existing infrastructure was destroyed, including telecommunications assets, leaving the young nation without a platform for development and seriously constraining its economic growth.

The UN was forced to deploy an international military convoy³ in order to restore the order and stop the suffering of thousands of East Timorese people.

To be reborn among the ashes

UN and the International Community were concerned about the future of this nation. On October 25th of 1999, the UN Security Council established a Transitional Administration (ETTA), headed by the governor Sérgio Vieira de Mello, and supported by a police arm in East Timor. The mission was to maintain the peace and help to establish the first national government, capable of implementing policies focused on the reduction of the nation’s widespread poverty (see Exhibit 2) raising levels of education and productivity. With this proposal, a National Council was created, aiming to introduce Timorese people to political life. There was an urgent need for skilled personnel and expatriates to lead different areas of development. Meanwhile, the East Timorese people counted on the support of international NGOs, foreign governmental agencies and international institutions, such as the World Bank, the Asian Development Bank, the International Monetary Fund, and the European Union.⁴

The East Timorese economy suffered a significant downturn with the events that followed the vote on independence. The sudden halt of all productive activity in the last four months of 1999 resulted in a 38.5% decrease in GDP⁵. When the UN personnel arrived in the country, they were faced with many difficulties regarding to initial conditions. The country was left without any legal or regulatory system after the Indonesian occupation. Businesses and service companies were forced to close due to the desertion of their qualified work force, mostly composed by Indonesian and Chinese workers. During the Indonesian occupation, no developments were made in the educational system and no University teaching facilities were created.⁶ East Timorese people were therefore not qualified to assume political positions, or to develop and operate businesses funded by private investment in the near future.

³ It was mostly compound by Australian military forces.

⁴ Between 1999 and 2009, it was accounted more than US\$5.2 billion as international aid destined to East Timor. Around 90% of this amount was used to finance expatriates salaries, overseas administrations, foreign soldiers, external consultancy, among others. Only US\$520 million had directly entered in the Timorese economy. (source: Timor-Leste Institute for Developing Monitoring and Analysis)

⁵ IMF estimates.

⁶ The most fortunate Timorese Youth had to go to Denpasar or Jakarta, in Indonesia, to take a superior degree. Most of the times, they did not return to East Timor.

Many infrastructures were either destroyed by guerrilla warfare, or rendered useless due to lack of maintenance and qualified people to operate them. Indonesians built an extensive road system throughout the island with very low standards of design and construction, which required constant maintenance to be kept in usable conditions. Port facilities in Dili were never used for international shipping and such improvements were crucial to improve both international trade and foreign aid. Electrical power generation was virtually wiped out and many regions were left without electricity.⁷ Even in Dili, business and service providers could not rely on the public power distribution, due to constant network break downs. Telecommunications assets were mostly destroyed during the war, leaving the island without a functional service of communications.

During the first years following the deployment of the UN international mission in 2000, international governance and financial aid boosted the economic activity. Private investors from all over the world started to consider East Timor as a potential market for growth, and foreign direct investment started to flow into the country's economy.

The Importance of the Telecommunications Sector

Before the tension erupted between Indonesia and the eastern part of the Timor Island, Telkom Indonesia⁸ was the sole provider of telecommunications services in East Timor. The company's main services were limited to the capital, Dili, with only few services provided in the District Capitals (mainly voice wire line connections). The rest of the island was unconnected (see Exhibit 1).

After the conflict, the UN found most of the telecommunications network completely destroyed⁹. The most serious damages were made to electronic equipment and buildings (see Exhibit 3). Initially, ETTA invited an Australian telecommunications company, Telstra, to operate in those still functional assets around Dili. Additionally, Telstra extended its mobile service network from Australia, via satellite connection, in order to provide telecommunication services in the remaining districts. However, this solution was adopted on a temporary basis, since it was very costly and it would not support the nation's desirable economic growth level.

At the time, globalization and information technologies were hot topics in international discussion forums. A proper telecommunications sector was seen as a precondition to plan the social and economic development of a nation, and the lack of such infrastructures was therefore a huge concern for the ETTA. Without telecommunications, the nation's social cohesion and commercial development was at risk, as well as the access to urgently needed foreign investment and international aid. The isolation would therefore jeopardize the international competitiveness of the economy.

⁷The Timorese Living Standard Measurement Survey accounted more than three quarters of the population lived without electricity in the post-conflict.

⁸ At the time, Telkom Indonesia was the biggest Indonesian telecom player.

⁹ The only exception was the exchange site in Dili.

The reconstruction of the telecommunications network in East Timor was not an easy task. The Government did not have enough resources to finance such an onerous investment, and neither could it guarantee the repayment of an international loan. In fact, there was a lot of political instability and no one could predict if the first governmental elections would change this situation.

One possible alternative was to deliver this task to the private sector. This solution had the advantage of allowing an experienced industry player to develop a new telecommunications system. A private sector player would be able to provide the know-how, the available technology, and the right suppliers for the development of the new network. The new telecom would also have to guarantee the financial resources to cover the required investment along the upcoming years.

The Transitional Administration was convinced of the importance of finding a sustainable international telecommunications player, able to guarantee the development of the East Timorese telecommunications sector. Therefore, ETTA specialists decided to launch a public “Build, Operate and Transfer” tender (see Exhibit 4).

The Business Plan

The East Timorese market was an old “love story” for PT, a Portuguese telecom company. Previous studies had already been made in order to understand if this former Portuguese colony could be a profitable and suitable market for PT. The violent events of 1999 cooled, during a certain period, the Portuguese interest in the Timorese telecommunications market, but the public tender launched by the ETTA had placed the “Timor folder” back in PT’s agenda.

Eng. ⁹ José Jardim was at the time the head of PT’s International Investments Department. He and his team had a two major challenge in their hands. First, they would have to gather necessary arguments to convince PT’s board that East Timor would be a profitable operation, even if it presented a highly risky profile. Then, they would have to present a winning proposal to ETTA, in order to obtain the exclusive operational licence.

An island in an ocean of uncertainty...

When Jardim reopened the “Timor folder”, he noticed the lack of information about the country and about its future outlook. In particular, two decision making factors were uncertain, which are key to the telecoms industry: the population size and the country’s economic activity.¹⁰

¹⁰ To minimize this critical problem, UN specialists developed an Information Memorandum with tangible data capable of supporting forecasts, which was delivered to each BOT applicant. You can found some figures in Exhibit 6 and the entire population at <http://www.gov.east-timor.org/old/tenders/20010810.im.pdf>.

PT was less worried about the population size, because managing a telecom operation could be profitable even in relative small market, under one condition: the population and the enterprises must have a minimum available income to spend on telecommunication services. PT was confident that population growth would be fuelled by a higher sense of safety, and by the desired economic development.

The biggest concern was related to the economic performance of the nation in the upcoming years.¹¹ The International Community hoped that East Timor could catch the “Development Highway” but there were many risks that could jeopardize the upward evolution of the economy.

From the top of all his experience in performing due diligences in developing countries, Jardim started to list the main threats that a new telecom company would face in East Timor.

On the top of the list was the significant political uncertainty surrounding the country’s future outlook. Despite of the announcement of the first elections for a National Government, experience revealed that new democracies were still politically and socially unstable. The idea of investing in a country which was still building its political and legal framework incorporated a real risk that would be hard to tackle.

Next, PT focused on the predictable short term results of investing in one of the youngest countries in the world and one of the least developed in South East Asia. The investment would bear a significant cash flow risk, since the Timorese population might not have enough available income to spend on telecommunications services. However, PT was aware of the important role that UN personnel and the foreign community would play in the economic development of the country. The “Malais”¹² represented the purchasing power of the Timorese economy and they would sustain the telecommunications sector during the initial years. The “money questions” were for how long UN institutions would remain in East Timor, and what would be the economic consequences of their departure. The UN presence in post conflict countries was also a safety guarantee and an important factor to promote foreign direct investment.

At the time, the cost of telecommunications equipment (mobile telephones or computers) was also very high, which would definitely impose a barrier to the demand of mobile and internet services in a country with low GDP.

Last but not the least, there was the big question mark about whether or not East Timor would effectively benefit from all the foreign aid (see Exhibit 6), and if it would be able to develop a resilient economy capable of creating and distributing wealth among the population. It was already known the great potential of the recently discovered oil reserves in the Timor Gap Oil¹³,

¹¹ Several studies indicate the telecom industry is highly correlated with the economic activity of a nation and the growth of demand depends on the ability of an effective creation and redistribution of wealth.

¹² This is the term used to call foreigners in Tetun.

¹³ The Timor Gap Oil is located in East Timor Sea which separates the East Timorese territory from the Australian continent.

however it was not yet decided how far Timorese jurisdiction extended in the East Timor Sea¹⁴. The existing oil and gas resources would definitely be the most valuable national assets, and the biggest sources of future revenues. Consequently, the wealth of the nation would depend on the future Government's capacity to negotiate exploration licenses with international players.

... and full of challenges.

PT also had in mind the challenges that a telecommunications company would face in East Timor, and their impact on the company's operational and capital expenditures. The lack of telecom infrastructures was certainly a barrier to proving a good service in the short term, but it was PT's job to solve it. What really concerned Jardim was the non-existent power supply industry¹⁵ and badly destroyed roads¹⁶. The lack of these two vital infrastructures would impose high investments to build and to maintain an effective network on the island.

The island's landscape and weather conditions, especially during the wet season, would also create great technical difficulties. Fresh in Jardim's mind was the road trip between Dili and Suai¹⁷ (see Exhibit 1) and the damages to his back. Transporting metallic infrastructures, sensible equipment and workforce along bumpy and dangerous stone roads, would definitely be a great challenge. Dili would be the receiving and dispatch point of all imported equipment and materials, since it was the only place in the island with decent port facilities. And the main difficulties would be during the wet season, because the rain threatened to block roads and isolate sites from maintenance or repairs.

Timorese human resources were also an important issue that PT had to deal with. During the Indonesian occupation, the majority of the East Timorese workforce was specialized in primary activities, such as agriculture or fishery. The workforce of the industrial and services sector was mainly composed by Indonesian and Chinese nationals. The East Timorese population was unprepared and presented high rates of illiteracy¹⁸, due to an obsolete education system inherited from the Indonesian legacy. As in other past investments, PT would have to allocate resources to intensive training and knowledge transfer programs, in order to develop technological and business competencies. East Timor presented an additional problem that could hinder higher productivity rates in the short term: the language barrier¹⁹.

¹⁴ At the time, there were running ferocious negotiations between the Australian and the Indonesian government to decide how to share these waters.

¹⁵ At the time, one of the Trust Fund (World Bank) priorities was the development of the power supply infrastructure. The investment was currently on going. It was also established that facilities would be managed by a public owned company, Electricidade de Timor-Leste.

¹⁶ Nowadays, the road system in East Timor is still very poor. Based on author's personal experience, the minimum required to circulate outside Dili is a 4wd jeep or truck. For instances, the average time range of a journey between Dili and the eastern island of Jaco (around 115km) is 7 hours.

¹⁷ Suai is a district in the south coast of the island where was found a big oil reserve.

¹⁸ In 2002, 42,4% of the population did not know how to write or read.

Source: (<http://world.bymap.org/LiteracyRates.html>)

¹⁹ Although Portuguese had been recognized as the official language, along with Tetun, only 20% of the population (the older layer) spoke the language.

Distribution channels were also very different from the reality of developed countries. Within the worldwide telecommunication industry, the pre-paid system is the most widely used payment method for mobile services. The lack of an efficient banking system in East Timor forced PT to deploy alternative distribution channels without the support of traditional ATM networks, and tailored to match the existing resources in a developing country²⁰.

All things considered, Jardim knew that from all the international projects in which he had been involved, this would definitely be the most challenging. However, he felt confident about previous PT's experience, that successfully established new telecommunication networks in developing countries. During the last years of the millennium, PT's operations in Africa showed the world their ability to implement and improve old telecommunication infrastructures in developing economies. PT was involved in the creation of Cabo Verde Telecom, in Cape Verde, and Unitel, in Angola, two leading players in their respective markets. Moreover, the recent entrance in the Brazilian telecommunications market, through the acquisition of Telesp Celular, revealed the strong internalization strategy of the group and a strong operational structure to hold multiple international operations.

Dealing with a Transitional Government

The priority was now to approach the local political and decision leaders, in order to access their receptivity to a proposal led by PT. The exclusive operational licence would be provided to the BOT applicant who could best meet the financial and operational criteria defined by specialists from the World Bank and ETTA. The National Council would have the last word, approving the applicant.

The first topic to be stressed was the period of the concession. PT's first proposal was 25 years, but Jardim knew that it would be difficult to achieve. An exclusive concession was a decoy to attract international telecom companies for such a challenging assignment; however the National Council would hardly agree to have a monopoly for this period of time in such a strategic sector. Therefore, the new operator would benefit from fifteen years of exclusive concession maximum, which could be extendable to ten more depending on its past performance.

The new operator's equity structure was also in question. ETTA demanded a minimum of 20% stake in equity. Additionally, other 10% had to be controlled by Timorese institutions or individuals.

ETTA further requested a social responsible policy, concerning the employee recruitment. The concessionaire should give preference to Timorese candidates over foreign ones, unless for specific conditions when experienced or specialist professionals were absolutely required. In those cases, the operator was authorized to recruit foreign professional or hire foreign institutions. The concessionaire would also have to provide constant professional training to the Timorese staff.

²⁰ In the telecom industry, distribution channels are all the ways that a telecom player has to provide its services to the final user.

BOT investment requirements were critical and non-negotiable²¹. The new operator would be responsible for implementing an entire telecommunications network throughout the country, connecting all district capitals with fixed line infrastructure and covering specific areas around those districts with a mobile telecommunications network. PT estimated an initial CAPEX of \$20M to \$25M dollars, of which \$10M dollars were still functioning assets that could be used in operational activities.²² The compliance of further investments required in the following years suggested that TT would have to support an average revamping or maintenance CAPEX of 15% to 20% of revenues, in each year²³.

The most sensitive topic in discussion was the determination of the ceiling tariffs which would be charged to customers. The tariffs should be addressed for the entire concession period and they were important to outline future operational margins. ETTA asked applicants to propose a tariff map considering three factors: price discrimination between business, households and charity institutions; tariff ceilings should be benchmarked with the reality of other telecom industries in the region; in an earlier stage, the new operator should incentivize the household demand for fixed service. The tariff maps would be reviewed periodically by the Regulator and the Concessionaire in order to adjust prices with the current inflation of the economy.

The concession contract would also establish fiscal benefits for the new telecom operator in East Timor. During the first years, imported equipment required for operational activity would be free of taxes, with the exception of mobile phones. Additionally, the Government would not impose any withholding tax over dividends on the future company.

At the end of his first due diligence session with decision leaders, Jardim felt quite uncertain about how East Timor's former Portuguese political status would influence the success of a proposal led by PT. He remembered clearly the day when Eng.^o Pedro Braga, the director of ETTA's Infrastructure Department, asked him directly why would a Portuguese telecom be interested in such an outlying market. Jardim was straightforward in saying that PT had a clear comparative advantage in investing in CPLP²⁴ countries, and at this point, it was already decided that Portuguese would be the official language in East Timor.

Antagonistically, Jardim was confident that PT's application could also benefit from the determinant role that Portugal performed during the independence process and take advantage of the strong diplomatic relationships between the two countries kept since then. For instance, the future probable leader of the first national government, Mari Alkatiri, had already reinforced his support to PT's application.

²¹ The results of these negotiations can be found in Exhibit 7.

²² ETTA announced some functional telecommunications assets around Dili that escaped from the militias' destruction, would be available for the winning applicant. They were valued around \$10M dollars.

²³ This assumption was benchmarked with PT's previous investments in Africa.

²⁴ CPLP stands for Comunidade de Países de Língua Portuguesa, which means the Community of Portuguese Language Countries.

Let the cats appear

The tender announcement was followed by much speculation around the players interested in operating in East Timor. From an economic perspective, it was clear that regional players could be interested in the exclusive concession of the fixed and mobile communication services. Their operational and execution risk was clearly minimized by their geographical proximity, and relative ease in relocating technological and human resources.

From early on, Australian interest in continuing operations in the East Timorese territory was clear. Telstra's presence in East Timor was already ongoing with two years of exclusive and lucrative operations, fed majorly by the needs of the international community. Despite of never having invested large amounts in the reconstruction of the telecommunications network during this period, the truth was that Telstra had already reallocated resources and staff to East Timor. Moreover, the Australian presence created significant political influence among the new East Timorese politicians and UN institutions, which could be important to support an eventual move from a consortium led by an Australian telecom operator. At the time, Australian nationals represented the biggest portion of the international community in East Timor, due to the presence of the Australian Army and Australian governmental institutions and NGOs. On the other hand, Telstra was being formally accused of enjoying from a monopolist situation without any concern about the development of this new nation. International aid organizations reported that the lack of investment made in a local wire line or mobile network was ostracizing East Timorese citizens, since they could not afford high tariffs practised, nor even the current prices of communications' equipment. Moreover, the company saw itself in a difficult situation when it was revealed that hundreds of East Timorese children were been encouraged to sell Telstra pre-paid cards in the streets of Dili.

There were also rumours about Telkom Indonesia, a state-owned company and the largest Indonesian telecom operator, trying to re-enter the Timorese market. However, the recent tensions between both countries were a clear handicap for such a move, therefore making a joint-venture with a more politically favoured player a better option for Telkom Indonesia.

The Consortium: what solutions?

On his long way back to Portugal, Jardim had time to review in detail the recent events that occurred since he landed in Dili. By what he witnessed, he suspected there was an opportunity for PT to achieve a good investment return in East Timor. However, Jardim was aware that BOT's investment and operational requirements were very strict. Therefore, the operational and financial success of such a project, within such conditions, would rely enormously on PT's capacity to constitute a solid consortium with valuable strategic partnerships. The hardest task was now to find the best combination of forces, among the available options.

The future consortium would have to strictly follow PT's Internationalization Model criteria (see Exhibit 8) in order to be approved by PT's board. Following the strategy adopted in previous investments in developing countries, PT's board would also not approve an equity stake exceeding 1/3 of the future company's total equity. However, BOT requirements defined

that the consortium would have to be led by telecom operators, which would assume the operational and financial management of the newly created company and the responsibility of complying with infrastructure developments.

PT also knew that Telstra and Telkom were also looking to establish partnerships before delivering a formal application. Aligning forces with one of these regional giants was a possibility; however, Jardim managed to find other interesting alternatives.

Vodatel Systems Inc., a company experienced in providing telecommunication infrastructure solutions in the People's Republic of China and listed in the Hong Kong Stock Exchange²⁵, presented its interest in joining a consortium led by PT. Vodatel targeted an equity participation of 15% to 20% of the future telecom operator.

During the time spent in East Timor, Jardim also assembled with the national representative of Fundação Oriente in East Timor. Jardim had knowledge that Fundação Oriente would be keen to support a project that could reinforce the cultural and language link between Portugal and East Timor. Therefore, Fundação Oriente was engaged in assuming an equity stake no higher than 10%, with the condition that the new telecom operator would have to be composed majorly by Portuguese capital.

“HARII” was the name given to an investment fund created with a 50/50 split between the Portuguese government and several Portuguese public/private corporations²⁶. This fund was destined to support the creation of new Timorese companies with the potential to contribute to the nation's future development. Jardim was assured that PT's future company could be financially supported by this fund if necessary, through equity participation²⁷.

From Childhood...

PT signed the Concession Contract on the 19th July of 2002 with the recently established Timorese Government. Timor Telecom (TT) was formally constituted as a Timorese company in October of the same year and started operations on the 1st of March of 2003. Eng.^o José Jardim was nominated CEO of the company and he remained in this position until the end of 2006.

It was very difficult to present substantial net results in the first years, since the business set up phase was complex and challenging.²⁸ As expected, the first years results relied heavily on the presence of the international community in East Timor.²⁹ The fixed service was demanded mainly by new businesses that started to appear in East Timor and by all the UN, governmental and non-governmental institutions. The international personnel were also responsible for the initial mobile penetration registered. The adopted strategy was to focus on the best service possible in the most economically developed areas, Dili and Baucau, and in the district capitals where population concentration was higher.

²⁵ For more information about Vodatel, see Exhibit 11

²⁶ At the time, the Portuguese Government hold high equity stakes of the biggest national companies.

²⁷ You can find more details about HAIRII and Fundação Oriente in Exhibit 12.

²⁸ You can check TT's financial statements in Exhibit 18.

²⁹ UN's Information Memorandum pointed for around 15 thousand foreign leaving in East Timor.

As expected, East Timor presented numerous operational challenges. The lack of a banking system or a national over the counter company³⁰ required that TT's sales people had to be on the streets selling pre-paid airtime credits to customers. Power supply costs represented a great portion of TT's operational costs, since all the network equipment had to be supplied by fuel generators. Maintenance and repair costs were also higher than average, due to adverse weather conditions and fragility of a very recent telecommunications network. Additionally, the need for experienced top management would result in higher personnel expenses. Jardim remembered how difficult it was to mobilize people to the Timor Telecom project, since the country was not a pleasant destination for middle aged professionals with an established life in Portugal. Intensive training programs were provided to local professionals across the entire organization and several key engineers from East Timor visited the Portuguese headquarters for advanced knowledge transfer initiatives.

The firm's financial health was also supported by the flexibility of some equipment suppliers, which worked together with TT as business partners, allowing for extended payment periods. The PT's Group and Vodatel were also TT suppliers, which helped smoothen the investment effort.

Enjoying its position as the exclusive telecom services provider, TT experienced healthy growth rate of revenues based on sustained levels of ARPUs³¹ during the first years of operations.

... to adolescence.

During the first decade of the millennium, the telecom industry changed dramatically worldwide. It experienced exponential growth with new technologies being released within short periods of time. The attractiveness of this industry led to the entrance of new players in new markets and consequently, decrease in prices.

Mobile services boomed and rapidly overtook the traditional fixed line services in terms of market penetration in the voice segment. Equipment and service prices were driven down and consequently lower end customer segments were progressively adopting the mobile service to communicate. Additionally, the mobile service was becoming the preferred means of internet access in the developing countries, where fixed line networks always lacked the necessary quality and capillarity due to decades of underinvestment.

The political and social environment had deteriorated again in East Timor with the military crisis of 2006³², which lead to the resignation of the Prime-Minister Mari Alkatiri, who was replaced by José Ramos-Horta.

³⁰ For instance, the national chain of supermarkets Circle K sells pre-paid credit recharges from Telkom Indonesia to its customers.

³¹ Average Revenue per User (ARPU).

³² The Timorese army welcomed almost every resistant who fought against the Indonesian forces. When the Government decided to reduce the military contingent, militaries came to the streets protesting against those cuts. At a certain point, the population joined riots and the problem almost reached civil war proportions. Once more, international forces were forced to intervene.

The end of 2006, was the time for Timor Telecom to convey a clear message of its commitment to the Timorese people. Dr. Manuel Capitão Amaro was the person charged with leading the transformation within the company. He replaced Jardim as CEO of TT and his mission was to expand the mobile coverage to the entire population by increasing investments in mobile network infrastructure and stimulating demand. It was critical that expansion would be followed up with increased quality in the service provided.

TT was still very favourably positioned to enjoy industry changes. It was possible to observe a very ferocious “price war” among telecom equipment suppliers with big players trying to enter new developing markets. During this period, TT had the opportunity to expand and reinforce the national telecommunications network with cheaper and better equipment than at the beginning of operations. From 2008 to the present, TT’s CAPEX accumulated levels totalled \$70M.

Telecommunication infrastructure was extended aggressively. Mobile network coverage jumped from 60% to over 90% of the population with an aggressive roll-out plan that tripled the number of base transceiver stations (BTS’s) installed in the country to reach customers in more remote and rural areas. At the same time, the core network and the mobile network were upgraded to cope with increasing service usage and to improve overall service quality. The 3G service was deployed in all District Capitals, providing the population with a mobile internet service, and a GPON (fibre) network was deployed in Dili to improve the service quality in the capital.

Distribution channels followed the network expansion. In order to provide service to more remote areas, TT expanded the numbers of its distribution agents, which grew from 100 to more than 1,000, and ensured a nationwide footprint. Additionally TT opened a network of branded stores in all District Capitals, and launched a 24/7 call centre.

Prices were pushed down to drive service adoption: Mobile prices were progressively reduced, with the pre-paid price decreasing from USD 0.25 to USD 0.18 and placing Timor as a reference when benchmarked with comparable markets in the region. The prices of SIM cards were slashed and cell phones were subsidized to reduce entry barriers and address lower income segments. The prices of internet access were also reduced aggressively and Community Centres were opened throughout the country to promote internet access in more remote areas.

It was also after the elections of 2007 and the nomination of Xanana Gusmão as Government leader that the political and social stability of the nation was finally achieved. The economy experienced double digit annual growth for consecutive years, which clearly stimulated demand among the population.

TT had successfully readjusted its strategic position and revealed completely different numbers from what it had showed until 2008³³.

³³ See Exhibit 23 for a detailed performance of the company since 2008.

The Market Liberalization Process

In 2011 the Government of East Timor issued the National Telecommunication Policy, a document that stated the Government intentions to liberalize and to regulate the telecommunications sector in the near future.

Despite all the investment done by TT, especially since 2008, the Government believed that competition would drive a positive change in the market, namely helping to further improve the current penetration or access levels, the quality of services provided, the reach of network coverage and the affordability of service prices especially for internet services. The Government reinforced this position by justifying that competitive markets was the natural evolution of the telecommunications industry in the world and the only way to achieve the objectives stipulated in the Strategic Development Plan 2011-2030³⁴.

The Government stated the intention to assemble with TT's management in order to review the exclusive concession contract signed in 2002. Negotiations between the parties lasted for several months and were conducted under a positive and collaborative climate, considering the importance of this matter for both the company and the Government of East Timor.

The Government intended to issue two new operating licences to any international player that showed capacity to help achieve the Government's goals. The Government decided to attribute the licenses to two major players in the Asia Pacific Region: Telkom Indonesia and Viettel.³⁵

The Government's intention to cease the contract sooner posed some issues that needed to be addressed by the parties. In the end the Government renewed the operating license for 15 more years and revoked the mandatory transfer of all telecommunications assets to the State, present in the BOT contract. This way, TT was guaranteeing that all the investment made during the previous years would stay within the company. Moreover, there would no longer exist any restrictions regarding the operators' ownership. From that date onwards, TT's shareholders were free to transfer their equity participation to anyone in the market, unless it disrupted competition rules.

On other hand, The Government established that TT was obliged to share its infrastructure, through rental contracts whenever it was physically possible (most of the towers were designed to support only equipment from one operator) and to negotiate interconnectivity arrangements in order to allow a working telecommunication service network in the territory.

On 28th of March 2012, negotiations came to an end and Capitão Amaro signed a new contract agreement with the Government. TT would have to face a new reality from that day onwards: a competitive world. Despite of all the investment made during the previous years that aimed at strengthening the company and staring to prepare it to a liberalized market, there was still much to do in order to minimize the impact of two new giants entering in the market.

³⁴ You can found *SDP 2011 -2030's* objectives regarding the telecommunication sector in Exhibit 25.

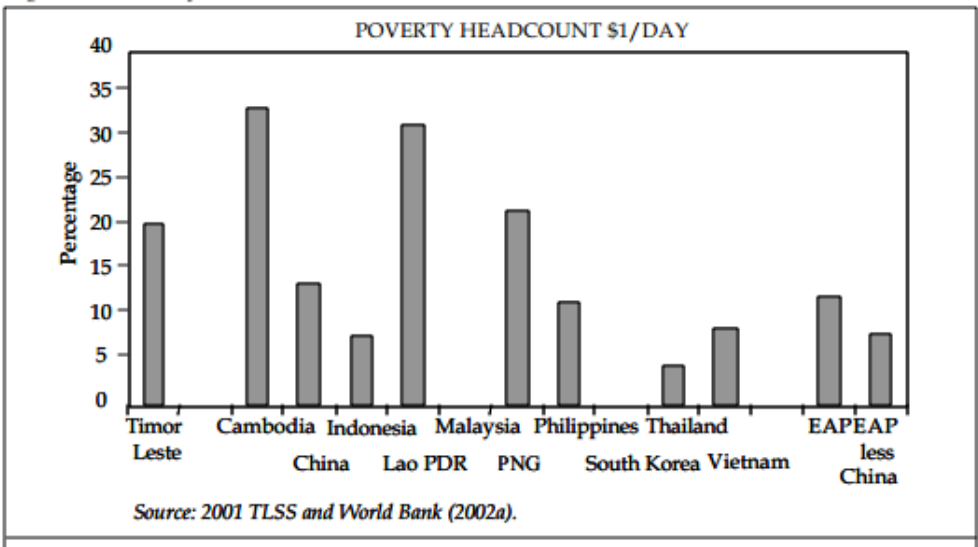
³⁵ You can find detailed description of these players in Exhibit 26.

Exhibit 1 – Map of East Timor



Source: <http://etan.org/timor/1whitepg.htm>

Exhibit 2 – Poverty Headcount \$1/day (as % of total population)



Source: Timor-Leste Poverty Assessment: Poverty in a New Nation Analysis for Action, World Bank , 2003

Exhibit 3 – Transcript of Ainaro Site Condition from BOT Sites Survey

The exchange building and the plant house have been destroyed and need to be demolished and rebuilt. All electronic equipment was destroyed. The generator sets have been destroyed, the fuel tanks have sustained no visible damage. The tower shows no visible damage. The outside cable has been largely stolen, the poles have not been damaged.

All weather access by 2WD.

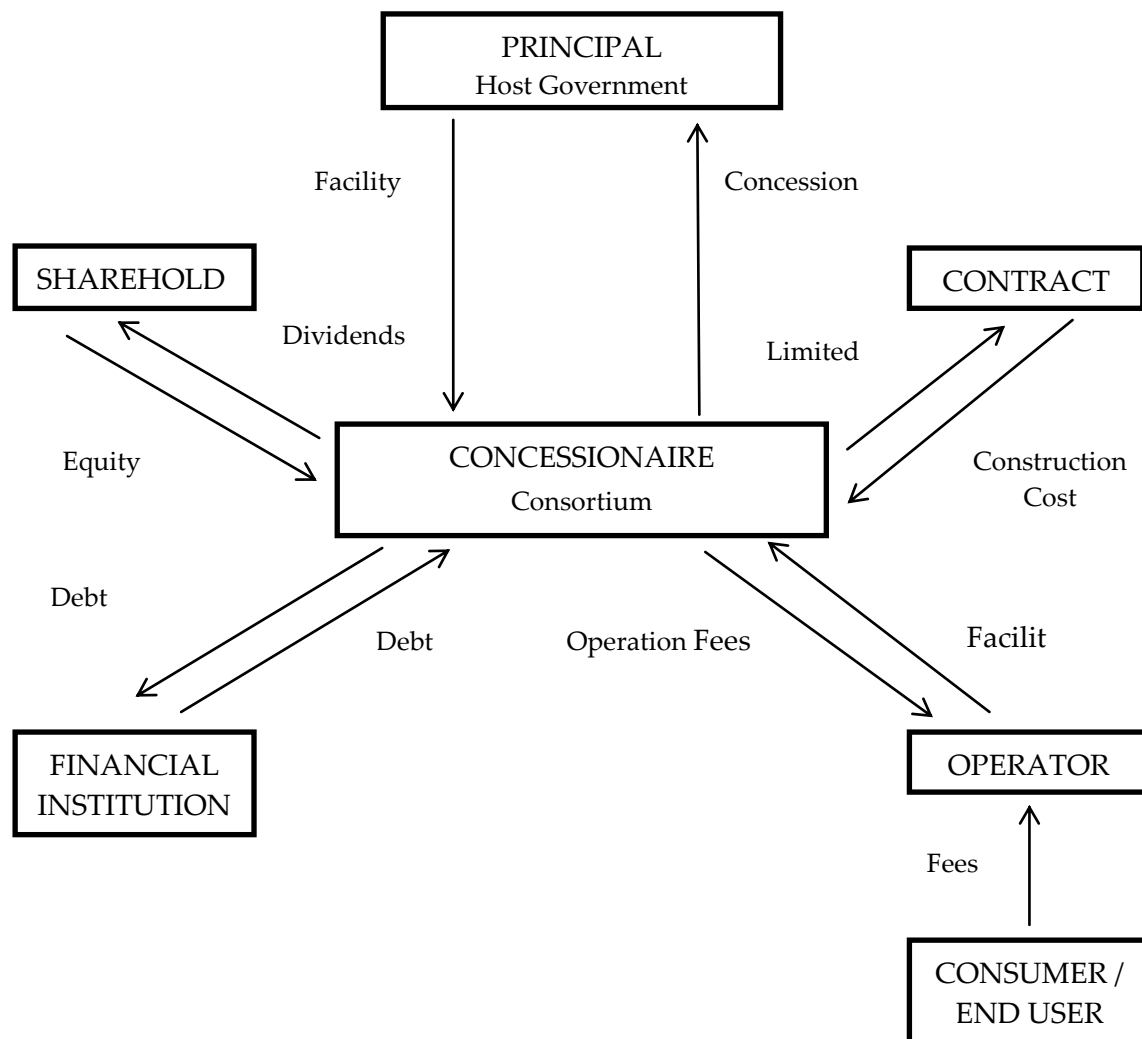
Overall condition: Very high damage.



Source: BOT Sites Survey, ETTA

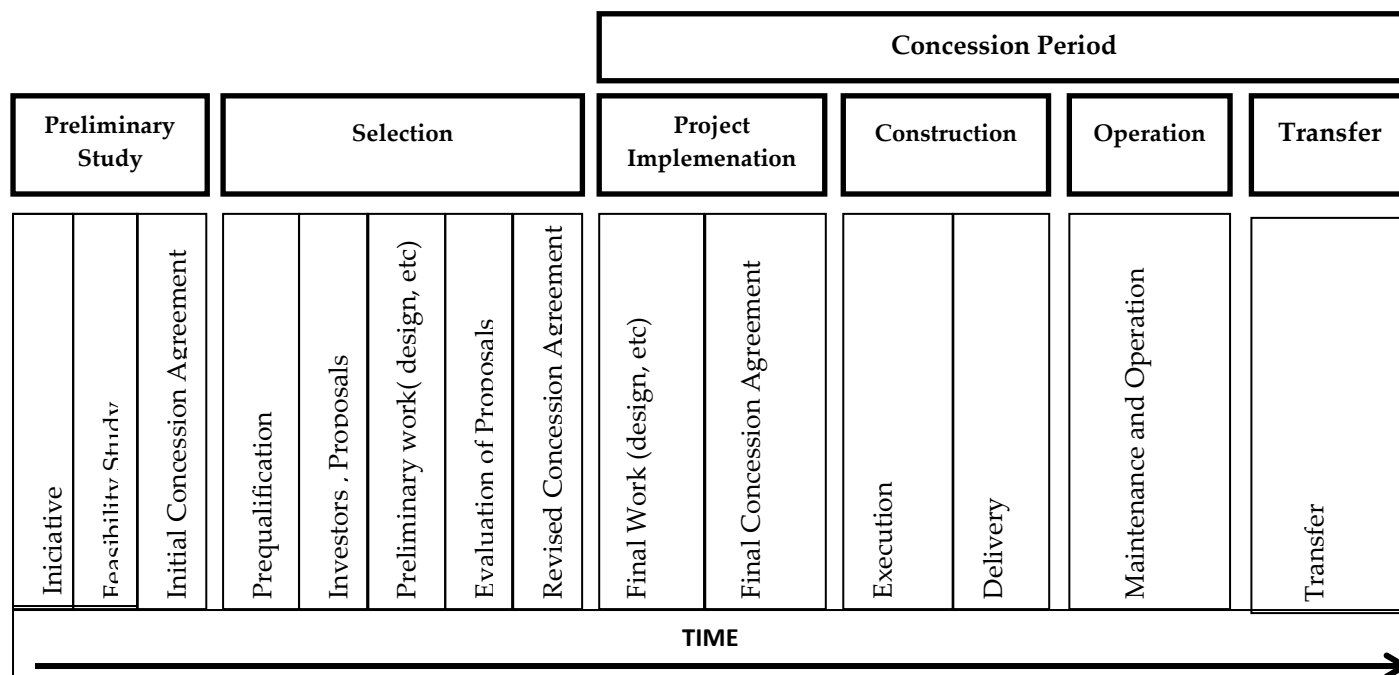
Exhibit 4 - Build Operate and Transfer (BOT) Approach

The Government grants to a private company the right of develop and operate the new telecommunications system for a limited period. The experience of similar contracts in similar economies dictates that the operator will benefit of monopoly conditions during the concession period, once it starts operations. In counterpart, the operator had to guarantee the reconstruction of the national telecommunications system, financing new assets that will be transferred for the public entity at the end of the concession period.



Source: Chapter 11: Build-Operate-Transfer for Infrastructure Development – Lessons from the Philippines Experience, *Gilberto M. Llanto*

BOT Contract Timing



Source: Chapter 11: Build-Operate-Transfer for Infrastructure Development – Lessons from the Philippines Experience, *Gilberto M. Llanto*

Advantages Offered by the BOT Model

The BOT Model offers a wide range of advantages to both the public and the private sector, explaining why it has been so common among infrastructure project financing in developing countries³⁶.

Focusing on the telecommunications sector, the industry has been characterized by a furious competition and margin reductions at a global level. Since the beginning of the millennium, International telecom players have started to look to developing countries as a way to diversify their investment portfolio and seek growth opportunities in less “crowded” markets. Thus, the BOT model offers competitive advantages from the state to the private sector, once an alliance between both parties arises. Private investors (lenders or equity holders) need the guarantee of host governments regarding the stability and predictability of the market they are investing in. Host government are able to provide this predictability through licence procedures, regulation or concession agreements, minimizing some important risks.

Commonly, BOT arrangements provide the concessionaire the full operating control of the infrastructure, which leads to a more efficient industry. A consortium of private firms responsible for developing and constructing the required infrastructure in order to explore it

³⁶ The Government of Thailand had also chosen the BOT model to provide a better telecommunication infrastructure to its users, in early 90's

later will have higher incentive to design and build it for more efficient and lower costs operations, reducing overall investment costs. Moreover, the limited period concession specified in the BOT arrangement will force the concessionaire to provide higher quality and effective services since an early stage in order to recover cost and profit through consumer revenue. Bearing in mind the capital intensive nature of the telecommunications industry, cost cutting efficiency carries a high importance. In this sense, Host Governments rest assured that technology available from the private sector will be utilized to its maximum potential and put in service on the development of nation's infrastructure.

As a project finance method, the BOT model allows the complete financing of critical infrastructure at a lower cost than if the host government had to seek financing by itself. Host governments of these developing countries are usually seen by private lenders as bad debtors with high credit risks. The private consortium gives credibility to these projects, enabling the developing countries to receive more favourable credit terms. At the end of the day, BOT projects not only enable the development of the economy by receiving foreign investment and enjoying from all the advantages of privatization, but also allow host governments to retain some control over such strategic sectors. First, the limited concession period and the asset's transfer phase allow host Governments to re-take the lead of operations in the future. Second, it is usual to find in BOT contracts a covenant stressing that the host Government will hold an equity portion of the project company. Finally, it is also common to see a regulator entity in these markets.

For further research regarding the BOT Model, the author recommends the following³⁷:

M. Llanto, Gilberto. 2008. "Chapter 11: Build-Operate-Transfer for Infrastructure Development – Lessons from the Philippines Experience". In *International Infrastructure Development in East Asia - Towards Balanced Regional Development and Integration* – ERIA Research Project Report 2007-2.

M. Llanto, Gilberto. 2008. "A Review of Build-Operate-Transfer for Infrastructure Development: Some Lessons for Policy Reform". Philippine Institute for Development Studies Discussion Paper Series No 2008-25.

J. Sozzi, Christopher. 1996. "Project Finance and Facilitating Telecommunications Infrastructure Development in Newly-Industrializing Countries". *Santa Clara Computer & High Technology Law Journal*, 16 (2): 436 – 487.

³⁷ All these sources are available online.

Exhibit 5 – The National Constituent Assembly

On the 22nd of February 2001, the National Council approved the future constitution of the National Constituent Assembly.

It would be composed by 88 members.

- 1 representative deputy per each of the 13 district, elected at a district level.
- 75 deputies elected proportionally at a national level

The National Constituent Assembly would be responsible for elaborating the First National Constitution, where it would be stated the basic foundations of the new Democratic Republic of Timor Leste.

The National Council registered 16 political parties and 16 independent individuals which intended to run for this election. In total, there were more than 1.100 candidates for 88 seats available in the Constituent Assembly.

Source: <http://members.pcug.org.au/~wildwood/01junelectoral.htm>
<http://members.pcug.org.au/~wildwood/01julconstituent.htm>

Exhibit 6 – ETTA Information Memorandum³⁸

This Information Memorandum aims to provide BOT candidates a sense of the East Timor reality. The data available prior to this study is very scarce which means that many of the presented estimates lack from post confirmation, as soon as better information becomes available.

Population Growth Behaviour

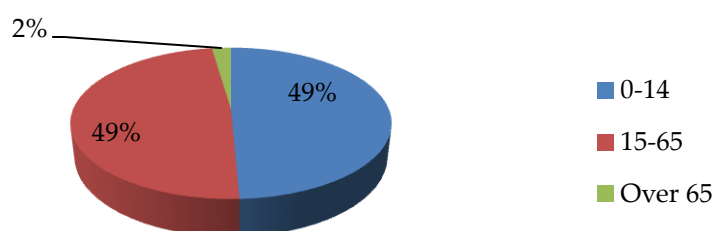
Until the date, they were made very few population studies covering the eastern part of the Timor Island. Nevertheless, the violence featured by the militias had completely changed the population movements. During the conflicts, many Timorese were forced to seek refuge in the mountains or in the western part of the island and part of them eventually died in the process. It was expected that this population returned back to East Timor, but the number was a big unknown. In the opposite direction, there was an outgoing movement of a great number of Indonesians and Chinese who had been working in the business and political sector. A rough estimation points that the East Timorese population is around 800,000 people.

³⁸ This is a portion of relevant information to the case. More info is available at <http://www.gov.east-timor.org/old/tenders/20010810im.pdf>

Estimated Future East Timor Population						
Year	2000	2003	2005	2010	2015	2020
Dili	132,131	185,635	196,94	225,002	254,569	285,222
<i>Annual Growth rates for previous period</i>		12.00%	3.00%	2.70%	2.50%	2.30%
District Capitals	401,198	389,282	408,192	457,343	509,914	562,986
<i>Annual Growth rates for previous period</i>		-1.00%	2.40%	2.30%	2.20%	2.00%
Rural Districts	246,239	267,508	281,05	316,434	354,537	393,36
<i>Annual Growth rates for previous period</i>		2.80%	2.50%	2.40%	2.30%	2.10%
East Timor	779,568	842,424	886,182	998,779	1.119,02	1.241,57
<i>Annual Growth rates for previous period</i>		2.62%	2.56%	2.42%	2.30%	2.16%

It is also expected a concentration of people in and around Dili. Dili is the main economic and Administrative center, which means more job opportunities and safety.

The East Timorese Population Age Structure, in 2001



Source: World Bank Data

Future Economic Activity

The current situation of East Timor makes any forecast about the future economic activity very unreliable. The current economic situation is dominated by the following:

- A completely destroyed vital infrastructure, such as Government and business buildings, telecommunications assets, power plants and roads.
- No permanent Government and no known national policies, aggravated by the lack of East Timorese political experience.
- Doubts related, in the short term, with the East Timorese capacity to lead and drive the development of the country.
- Timor Oil Gap represents a large future government revenue opportunity, but it is uncertain if it will be well exploited.
- In the near term, a low taxation base in order to attract foreign direct investment needed for the reconstruction of the economy.
- The economic importance of the current UN presence in and around Dili.
- The time presence and effectiveness of the foreign aid.

Taking these issues into consideration, ETTA specialists had arrived to the following forecast:

Estimated GDP (US\$ million) (Base Case)						
Year	2000	2003	2005	2010	2015	2020
Dili	158.9	232.8	282.9	365.0	448.4	530.6
District Capitals	53.4	105.8	155.7	244.6	333.5	420.8
Rural Districts	50.6	59.1	64.3	82.5	101.0	119.9
National Total	263.0	397.7	502.9	692.1	882.9	1,071.4

Source: Information Memorandum – Rehabilitation of the Telecommunications Sector in East Timor

Estimated GDP / Capita (US\$) (Base Case)						
Year	2000	2003	2005	2010	2015	2020
Dili	\$1,203	\$1,254	\$1,437	\$1,622	\$1,761	\$1,860
District Capitals	\$133	\$272	\$381	\$535	\$654	\$748
Rural Districts	\$206	\$221	\$229	\$261	\$288	\$305
National Average	\$337	\$472	\$568	\$693	\$791	\$863

Source: Information Memorandum – Rehabilitation of the Telecommunications Sector in East Timor

ETTA's specialists had developed an econometric model to forecast the fixed and mobile service demand, based on a comparison with countries with similar GDP level in 1998. The sample includes India, Azerbaijan and Armenia.

Potential Telephone Demand (in each location)

Before the turmoil, East Timor registered 6.752 telephones connected by wire line.

Year	2000	2003	2005	2010	2015	2020
Dili	5,767	10,308	12,859	20,245	29,364	40,114
District Capitals	1,935	4,356	6,781	11,860	18,060	25,054
Rural Districts	1,835	2,175	2,406	3,131	3,892	4,793
National Total	9,538	16,838	22,046	35,236	51,316	69,962

Source: Information Memorandum – Rehabilitation of the Telecommunications Sector in East Timor

Mobile telephone demand forecasts are based on statistics from 1998. Since then, there has been an explosive growth in the demand for mobile phones due to the increasing perception of mobile devices utility. Due to this, ETTA admits that these forecasts can be underestimated.

Mobile Telephone Demand: East Timor						
Year	2000	2003	2005	2010	2015	2020
Total Population	779,568	842,424	886,182	998,779	1,119,020	1,241,569
Total GDP/Cap	\$337	\$472	\$586	\$693	\$791	\$863
Forecast Mobile Demand (/1000 pop)	3.35	4.88	6.00	7.42	8.52	9.61
Total Mobile Demand	2,610	4,112	5,319	7,501	9,756	11,927

Source: Information Memorandum – Rehabilitation of the Telecommunications Sector in East Timor

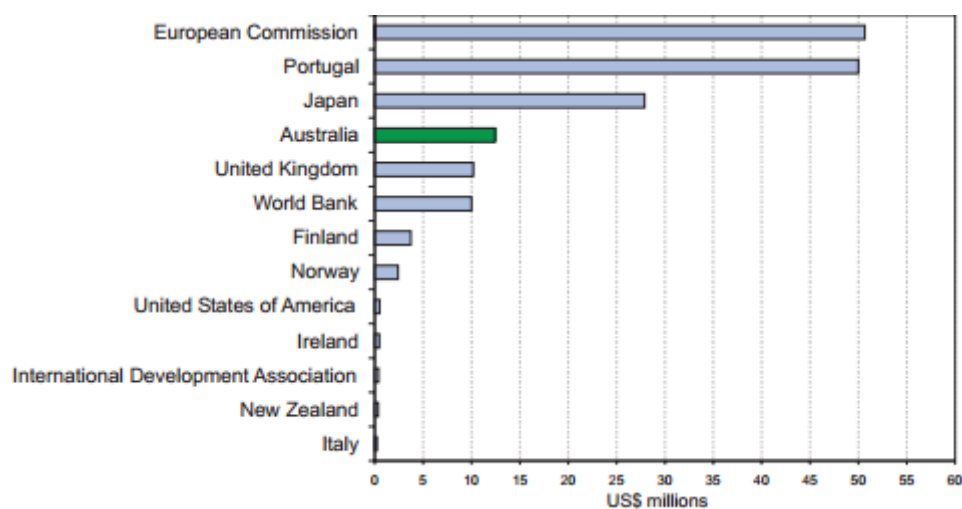
Exhibit 7 – Aid per capita in post-conflict countries (annual average for the first 5 years following the conflict ended)

	Population (million)	GDP per Capita (current US\$)	Aid per Capita per Year (Current US\$)
Azerbaijan	7.8	464	16
Bosnia and Herzegovina	3.7	987	247
Cambodia	11.4	269	30
East Timor	0.8	341 ^a	209
Lebanon	3.9	1,943	42
Mozambique	15.8	166	67
Nicaragua	4.2	425	147
Rwanda	7.5	226	59
West Bank and Gaza	2.5	1,433	213

a/ Non-oil, excluding UNTAET services.

Source: Working Paper n° 2, “The East Timor Reconstruction Program: Successes, Problems and Tradeoffs”, World Bank

Exhibit 8 – List of country donors (US\$ millions), 1999-2002



Source: Aid to East Timor – Australian Agency for International Development, Audit Report NO. 20 2003-04, Performance Audit, The Auditor General

Exhibit 9 – Negotiation with ETTA specialists. BOT requirements and outputs

Development Plans

TT would be responsible to deliver annually a development plan for the following three years to the regulator entity. The plan should clearly specify technical and financial details about the expansion and improvements of the network, as also improvements of the services provided.

Geographical coverage

The fixed wire line network must link all the district capitals and service must be provided to any household, business or institution fixed in the city boundaries.

Regarding the mobile service, the network coverage should be as follow:

Locations	Requirements
Dili and Ataúro	The coverage area included the island of Ataúro and the region included in 25km radius range from Dili's central telecommunications building
Baucau, Maliana and Suai	The coverage area included the region within 7,5km radius range from the central telecommunications building of each district capital.
Aileu, Ainaro, Liquiçá, Los Palos, Manatuto, Oecussi, Same, Viqueque, Ermera	The coverage area included the region within 4km radius range from the telecommunications building in each district capital

Source: Contrato de Concessão do Serviço de Telecomunicações da República Democrática de Timor-Leste

At a first stage, the plan intended to cover more than half of population.

Time Schedule

Due to the economic importance of Dili in the Timorese context, it was discriminated different time deadlines for Dili and for the remaining district capitals.

Dili

- 75% of clients should have access to fixed and mobile services within 5,5 months.
- 100% of clients should have access to fixed and mobile services within 15 months.

District capitals

- 75% of clients should have access to fixed and mobile services within 12 months.
- 100% of clients should have access to fixed and mobile services within 15 months.

Exhibit 10 – PT's Internationalization Model criteria



Source: Portugal Telecom

PT leverages intensively on local partners and professionals to manage the international operations, supported by comprehensive knowledge transfer programs and sharing of best practices.

Exhibit 11 – Transcription from Vodatel's Company Information Sheet

"Company name : Vodatel Networks Holdings Limited

Stock code (ordinary shares): 8033

(...)

B. Business activities

Headquartered in Macao and listed on GEM, the Company and its subsidiaries (collectively referred to as the "Group") carry the vision to deliver high quality communications infrastructural solutions to customers, allowing them to manage their business and reach out for information, anywhere and anytime. The Group principally engages in the provision of network and systems infrastructure and applications, customer network management system ("CNMS") and customized software solutions.

The Group provides an integrated span of services in network and systems infrastructure and applications and software solutions, ranging from network and systems planning, design, provision of equipment and software, installation and implementation to maintenance and technical support for telecommunications service providers in the People's Republic of China ("PRC") and enterprises customers in selected vertical markets. In Macao, the Group is also a

leading provider of solutions in structured cabling, surveillance, trucking radio and networking solutions for different gaming and hotel operators, governmental authorities and enterprises.

The Group is engaged in the provision of self-developed CNMS for telecommunications service providers in PRC, which allows various operators to effectively and efficiently manage the performance of and traffic over the networks. The Group also provides data and environmental controlling solutions that allow users to readily and flexibly access, manage and utilize information/data and to conduct effective and improved environmental monitoring. The Group also designs and builds customized software for its clientele base.

The Group currently has operating subsidiaries in Macao, Hong Kong, Guangzhou and Shanghai, providing a full range of products, solutions and support services. The Group also operates a service hub from Guangzhou that offers general 24-hour nationwide support services. The Group has also established representative offices in different major cities in PRC, namely Beijing, Shanghai, Nanchang, Shenyang, Zhengzhou, Guangzhou, Chongqing and Wuhan, offering products/solutions information and local support services.”

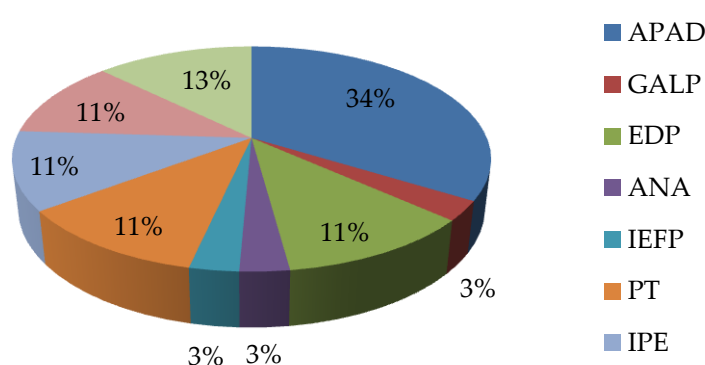
Source: Vodatel’s website (http://www.vodatelsys.com/investor_companyprofile.htm#)

Exhibit 12 – Overview of HAIRII and Fundação do Oriente

HAIRII – Sociedade de Desenvolvimento de Timor Lorossae, SGPS, SA

In August of 1999, APAD³⁹ created an institution that aimed to materialize the Portuguese support for the reconstruction and development of East Timor, designated as “HAIRII – Sociedade de Desenvolvimento de Timor Lorossae, SGPS, SA”. The primary goal was allocate financial resources that could be invested in major projects related with the development of the Timorese economy.

The social capital of HAIRII amounted 4.5M euros and it was distributed in the following way:



Source: Janus Online

³⁹ Agência Portuguesa de Apoio ao Desenvolvimento (APAD) was created to coordinate the Portuguese cooperation with former colonies. It was under the responsibility Portuguese Ministry of External Affairs’ responsibility.

Most of the capital structure was held by state-owned companies or institutions that operated in sectors considered vital to the economy. Their role was to support locally the foundation of new companies capable of build and maintain basic infrastructures for the social and economic development of East Timor. Later, in 2004, the majority of the capital was alienated to Fundação São José, which belongs to Diocese of Baucau and has direct links with the Catholic Church.

Source: http://www.comissario-timor.gov.pt/quem_somos/quem_somos.asp and Janus Online

Fundação Oriente

Fundação Oriente was founded in 1988 and aims to provide financial support to all actions that can enrich the links between Portugal and the countries in the East, specially China and the former Portuguese colonies. These actions often assume cultural, educational, scientific and cultural character.

In East Timor, Fundação Oriente is present since 2000 and it has been granting scholarships to Timorese researchers and promoting training and social integration programmes.

Source: Fundação Oriente web site (<http://www.foriente.pt/>)

Exhibit 13 – TT's expected Operational Revenues & Costs

USD '000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Operational Revenues		8.582	10.395	11.965	13.745	11.181	14.260	17.764	24.855	31.300	40.802	46.359	51.331	54.093	57.075
%growth			21%	15%	15%	-19%	28%	25%	40%	26%	30%	14%	11%	5%	6%
Sales of Equipment		408	192	159	174	287	418	464	828	919	1.237	1.369	1.277	1.152	1.224
%growth			-52,87%	-17,36%	9,26%	65,39%	45,55%	11,11%	78,42%	10,99%	34,55%	10,72%	-6,75%	-9,76%	6,25%
Service Rendered Fixed		3.281	3.359	3.619	3.982	2.518	2.684	3.225	5.517	7.141	8.999	9.603	10.563	11.126	11.968
Voice Fixed		1.661	1.700	1.788	1.877	962	1.057	1.231	1.947	2.435	2.818	3.088	3.581	3.878	4.402
%growth			2%	5%	5%	-49%	10%	16%	58%	25%	16%	10%	16%	8%	14%
Market penetration		0,40%	0,40%	0,41%	0,42%	0,41%	0,44%	0,50%	0,90%	1,10%	1,40%	1,50%	1,70%	1,80%	2,00%
Suscribers		3.376	3.456	3.633	3.814	3.816	4.196	4.887	9.015	11.271	14.675	16.085	18.649	20.200	22.927
ARPU (monthly USD)		41	41	41	41	21	21	21	18	18	16	16	16	16	16
Internet		1.620	1.659	1.831	2.105	1.557	1.627	1.994	3.570	4.707	6.181	6.514	6.982	7.248	7.566
%growth			2%	10%	15%	-26%	4%	23%	79%	32%	31%	5%	7%	4%	4%
Market penetration		0,08%	0,08%	0,09%	0,10%	0,08%	0,08%	0,10%	0,20%	0,26%	0,36%	0,38%	0,41%	0,41%	0,44%
Suscribers		675	691	763	877	763	797	977	1.983	2.705	3.816	4.021	4.476	4.646	5.044
ARPU (monthly USD)		200	200	200	200	170	170	170	150	145	135	135	130	130	125
Service Rendered Mobile		4.893	6.843	8.188	9.590	8.376	11.159	14.074	18.510	23.239	30.566	35.387	39.492	41.814	43.882
%growth			40%	20%	17%	-13%	33%	26%	32%	26%	32%	16%	12%	6%	5%
Voice Mobile		4.893	6.843	8.188	9.590	8.376	11.159	14.074	18.510	23.239	30.566	35.387	39.492	41.814	43.882
Market penetration		2,20%	3,00%	3,50%	4,00%	5,00%	6,50%	8,00%	11,00%	14,00%	18,00%	22,00%	25,00%	27,00%	29,00%
Suscribers		18.534	25.921	31.015	36.325	46.532	61.992	78.190	110.178	143.452	188.680	235.913	274.248	303.001	332.442
ARPU (monthly USD)		22,0	22,0	22,0	22,0	15,0	15,0	15,0	14,0	13,5	13,5	12,5	12,0	11,5	11,0
Operational Costs		6.008	7.276	8.137	9.209	7.715	9.554	11.724	15.410	18.780	23.257	25.497	28.232	29.751	31.391
%growth			21%	12%	13%	-16%	24%	23%	31%	22%	24%	10%	11%	5%	6%
EBITDA		2.575	3.118	3.829	4.536	3.466	4.706	6.040	9.445	12.520	17.545	20.861	23.099	24.342	25.684
Margin (%)		30%	30%	32%	33%	31%	33%	34%	38%	40%	43%	45%	45%	45%	45%

Source: Author's estimates

Exhibit 14 – Assumptions to estimate Free Cash Flows

Operational Margins were benchmarked with previous PT's investments in Cape Verde and São Tomé e Príncipe.

It was considered that telecom assets would depreciate at an average rate of 10%.

Working capital needs were computed through an industry average ratio. The ratio performed was Working Capital over Operational Revenues and the value assumed was -23%. There was a revolver credit line of \$10M available to face punctual working capital needs, costing 4%.

It was assumed that BOT requirements and the initial strategy followed by TT would demand a reinvestment rate in CAPEX of 15% of Operational Revenues. Due to local credit conditions, it was not expected that the new telecom could contract long term debt.

It was assumed a marginal corporate tax rate of 30%⁴⁰.

Exhibit 15 – Countries Ratings in 2002

Indonesia	B3
Papua New Guinea	B1
Vietnam	B1
Philippines	Ba1
Fiji Islands	Ba2

Source: Aswarth Damodaran's website (<http://pages.stern.nyu.edu/~adamodar/>)

⁴⁰ This was the actual corporate tax in 2001 for the telecom industry. In "Unofficial Consolidation of UNTAET Regulation No. 2000/18 as Amended on a Revenue System for East Timor", 2000.

Exhibit 16 – CDS scale basis points, in 2002

Rating	Country Bond (H)
A1	100
A2	125
A3	135
Aa1	75
Aa2	85
Aa3	90
Aaa	0
B1	600
B2	750
B3	850
Ba1	325
Ba2	400
Ba3	525
Baa1	150
Baa2	175
Baa3	200
Caa	900
Ca	1100

These historical spreads represent an average over previous 5 years.

Source: Aswarth Damodaran's website (<http://pages.stern.nyu.edu/~adamodar/>)

Exhibit 17 – Comparables Information

	Raw beta	D/E	Marginal Tax rate
TLKM IJ	1,01	1,57	30%
DIGI MK	1,59	1,28	28%
ISAT IJ	0,95	1,05	30%
TEL PM PHP	0,87	2,41	32%

The author assumed that the best TT's proxies at the time would be two Indonesian operator, Telkom (TLKM IJ) and Indosat (ISAT IJ), the Philippine Long Distance Call (TEL PM) and Digicel Malaysia (DIGI MK).

Raw Betas were taken from Bloomberg. The data encompassed weekly observations of returns from each company and from the S&P500 during 3 years, prior to 2002.

Debt to Equity ratio was also based on Bloomberg information regarding the fiscal year of 2001.

Marginal tax rate presented were the current ones in 2002. Information was retrieved from "KPMG Corporate Tax Rate Survey – January 2002".

Exhibitt 18 – TT Financial Statements

Balance Sheet (2003-2011)

USD '000	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total Assets	21.948	22.376	21.697	22.711	29.705	38.119	42.011	63.527	86.151
Current Assets	4.324	3.978	5.410	8.631	17.186	18.632	13.405	20.162	20.162
Cash	2.187	674	615	1.951	10.515	10.084	5.250	7.630	6.859
Inventories	76	330	398	507	672	809	1.655	3.793	3.388
Trade Receivables	1.650	2.357	3.846	5.718	4.653	6.888	5.019	6.696	7.758
Other Current Assets	410	618	551	455	1.345	850	1.481	2.043	2.156
Non-Current Assets	17.625	18.397	16.287	14.080	12.518	19.487	28.606	43.366	65.989
Tangible Assets	15.817	17.316	15.888	13.949	12.043	18.836	28.121	42.297	42.177
Intangible Assets	1.808	1.081	399	131	475	651	484	1.068	23.812
Other Non-Current Assets	0	0	0	0	0	0	0	0	0
Total Liabilities	17.783	16.145	13.134	10.701	12.982	12.894	13.558	29.898	51.006
Current Liabilities	17.186	14.343	8.907	9.930	12.383	12.164	13.300	19.839	32.897
Interest-Bearing Debt	0	0	3.286	0	0	0	0	7.500	17.851
Other Non-Current Liabilities	597	1.801	941	771	598	730	258	2.559	258
Equity	4.165	6.231	8.563	12.010	16.723	25.225	28.453	33.629	35.145
Shareholder's Equity	4.400	4.400	4.400	4.400	4.400	4.400	4.400	4.400	4.400
Net Income	-150	2.065	2.332	3.447	7.261	14.754	17.997	23.173	24.689
Other Reserves	-84	-235	1.831	4.163	5.062	6.071	6.056	6.056	6.056

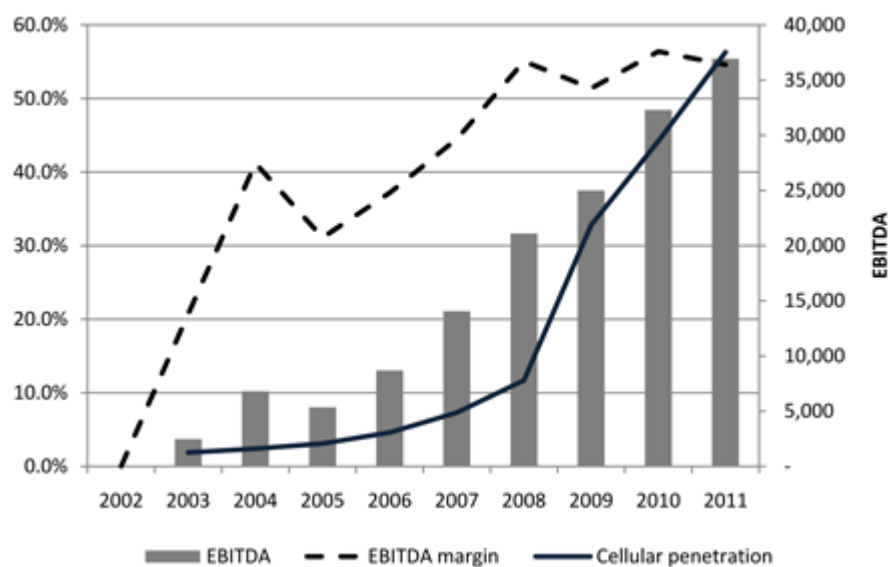
Source: Portugal Telecom

Income Statement (2003-2011)

USD '000	2003	2004	2005	2006	2007	2008	2009	2010*	2011
Operational Revenues	11.928	16.528	17.246	23.331	31.583	38.484	48.609	57.240	66.382
Sales of Equipment	0	0	304	632	319	631	1.988	928	1.072
Service Rendered	11.928	16.528	17.337	23.387	31.926	38.674	47.593	56.312	65.310
Fixed	5.319	7.027	4.714	5.648	5.990	5.946	5.925	5.283	6.001
Mobile	6.441	8.834	12.093	16.806	24.762	31.630	40.578	50.339	56.902
Other	168	667	530	933	1.175	1.098	1.090	690	2.407
Operational Costs	9.457	9.721	11.715	14.185	17.117	17.845	23.602	24.950	29.390
EBITDA	2.471	6.807	5.531	9.146	14.466	20.639	25.007	32.290	36.992
D&A	1.147	2.503	3.275	4.463	4.065	3.707	4.769	6.564	10.346
EBIT	1.324	4.304	2.257	4.683	10.402	16.932	20.238	25.725	26.646
Financial Income	465	1.147	1.222	253	393	1.307	880	-78	1.079
Financial Expenses	1.570	2.113	547	798	677	1.453	1.121	0	278
Non-Recurrent Items	255	121	-472	-485	-244	393	-28	-101	15
EBT	-36	3.217	3.404	4.623	10.361	16.393	20.025	25.748	27.432
Income Tax	115	1.151	1.072	1.336	3.100	1.639	2.028	2.575	2.743
Net Income	-151	2.065	2.332	3.287	7.261	14.754	17.997	23.173	24.689

Source: Portugal Telecom

Exhibit 19 – Timor Telecom Operating performance and Cellular penetration



Source: <http://www.telecomsliberalisation.tl/>

Exhibit 20 – Timor Telecom Parque

	2003	2004	2005	2006	2007	2008	2009	2010*	2011
Subscribers	22.495	28.307	36.048	52.324	81.314	128.388	354.416	479.569	627.037
Mobile	20.058	25.722	33.072	49.100	78.215	125.022	350.968	473.020	602.481
Fixed	1.970	2.082	2.351	2.521	2.457	2.641	2.830	2.999	2.966
Internet	467	503	625	703	642	725	618	3.550	21.590
Number BTS Installed	19	23	31	31	33	40	61	98	131
BTS 3G							8	30	58
Coverage (% Pop)	-	-	-	-	-	-	61%	86%	92%

Source: Portugal Telecom

Exhibit 21 – Historical East Timorese Population and GDP annual Growth rates

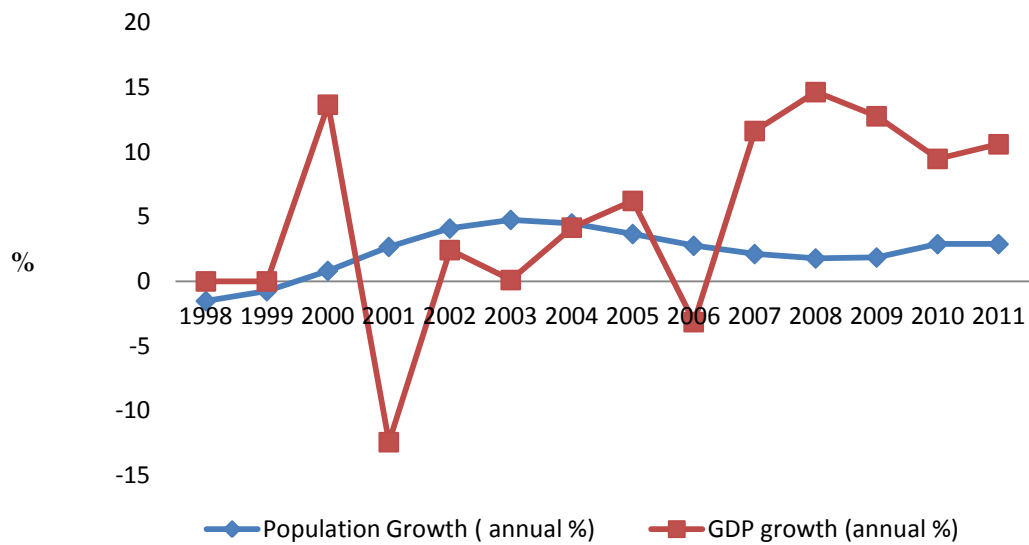


Exhibit 22 – East Timorese Population Age Structure, in 2011

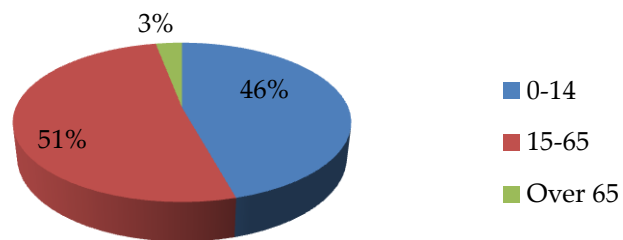


Exhibit 23 – Achievements since 2008

The initial stage was characterized by a great effort to reconstruct telecommunication network and provide a reliable service in all segments: fixed, mobile and internet service. After 2008, TT entered in an expansion stage in order to accelerate and develop its business.

Network, Infrastructures and Information Systems

- Mobile coverage expansion with the construction of 2G Base Transceiver Stations (BTS) in rural zones. The objective was reach population not yet covered. From 2008 to 2011, TT had triplicated the number of 2G BTS and expanded its potential coverage from 60% to 92% of population.
- Launched the 3G service in all district capitals.
- Reinforced the mobile network capacity in areas of higher customers' concentration. Between 2009 and 2011 the call drop rate (CDR) fell from 2% to 0,1%.
- Reinforced core network capacity with the construction of SDH rings and fiber optic backbone to close the link between all BTS installed in major metropolitan areas.
- Installed GPON network in Dili, in order to replace the old copper network and provide a better service in fixed service.
- Reinforced the connection via satellite to extend the Internet service capacity.
- Constructed a Data Centre in Dili.

Distribution Channels

- Strong expansion of agents' network in order to ensure higher coverage (nationwide footprint). Between 2009 to 2011, agents network grew from 104 to 1.125 sell spots spread through all the country.
- Opened TT over-the-counter stores in all district capitals.
- Established a new call center functioning 24/7, in order to ensure a personal service to final user.

Marketing

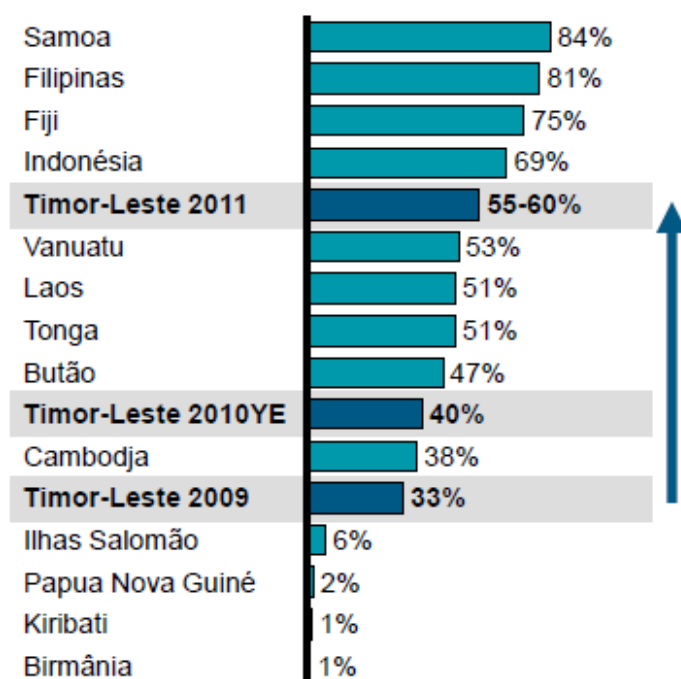
- Launched the new TT brand, supporting the business growth strategy and aligning the company's values with Timorese identity.
- Launched new products and services, such as Internet in mobile phones, pre-paid 3G, credit transfers between customers, among others)
- Launched new tariffs to specific market segments.
- New promotions campaigns offering bonus credit recharges or minutes / SMS.
- Launched the new web portal www.sapo.tl , with local contents

Democratization process to ensure higher access to telecommunication services

- Mobile service prices were progressively reduced. Between 2009 and 2012, pre-paid price per minute was reduced from USD 0,25 to USD 0,18. Nowadays, prices are already a reference when benchmarked with comparable countries in the region (see figures in next Exhibit).
- Reduced the minimum value of credit recharge to USD 0,50 lowering the barrier for low income customers.
- Reduced Internet service prices in order to stimulate demand in this segment.
- Construction of community centers with free Internet access in rural areas.

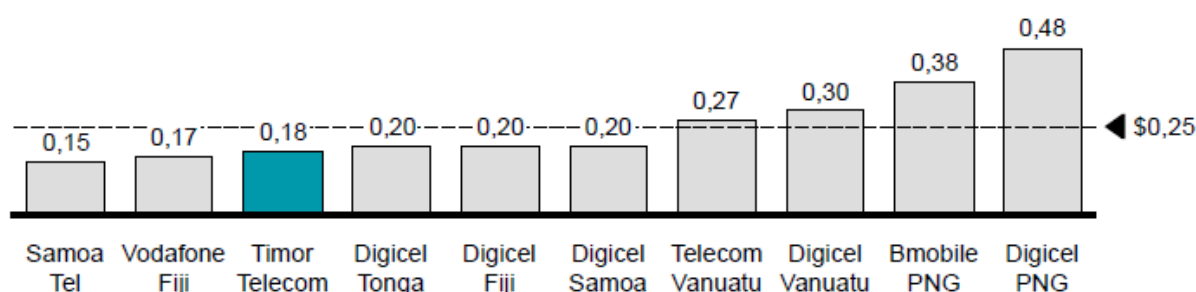
Exhibit 24 – TT and East Timor benchmarked with comparable markets in the South East Region.

Mobile Subscribers in % of total population (2011).



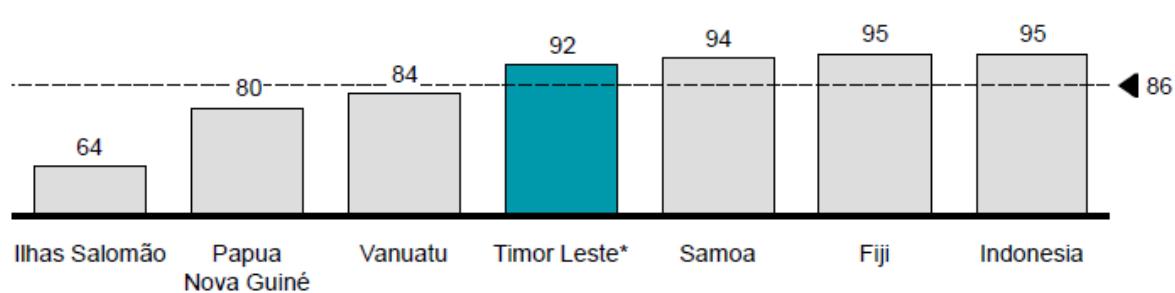
Source: Portugal Telecom

Mobile service prices (on-net peak tariffs – USD per minute)



Source: Portugal Telecom

Mobile population coverage (% of total population 2011)



Source: Portugal Telecom

Exhibit 25 – Strategic Development Plan 2011-2030: Strategy and Objectives

“Our vision is that by 2015, we will have a modern telecommunications network that will connect people in Timor-Leste to each other and to the world, and that will allow us to take full advantage of global telecommunications advances. To achieve our vision, we will open our telecommunication market to competition, establish a new independent regulatory body and introduce Universal Service Policy that will dramatically improve access to affordable, reliable and modern telecommunications services.”

By 2015:

- Reach mobile phone coverage to all Timorese population by decreasing prices.
- Allow full access to high speed Internet services in district capitals and surrounding areas.
- Connect all public schools and health clinics with high speed Internet.
- Establish an effective regulatory framework to manage competition in the market.

Exhibit 26 – Overview of Telkom Indonesia and Viettel

Telkom Indonesia

- Telkom Indonesia is the principal telecommunications and media operator in Indonesia. The state holds an equity stake of 52% and the remaining is held by privates.
- It is the biggest Indonesian company listed on stock exchange (\$19,7B on the 11th November 2012). It is listed simultaneously in NYSE, LSE and IDX.
- It offers a large range of telecommunications services, namely voice service (fixed and mobile), Internet service, pay TV, BPO, among others.
- Telkom Indonesia's international investments are managed and controlled by Tellin, which is a subsidiary 100% held by Telkom Indonesia.
- Tellin is present in several countries in the South East Asia.
- It expects to reach a 43% market share in East Timor by 2017.

Viettel

- Viettel Telecom Company is the major telecommunications operator in Vietnam and it is 100% held by the State and controlled by the Ministry of Defense.
- In 2011, revenues increased 28% reaching \$5,6B and net profit was \$1B.
- All international investments are managed by Viettel Global, which is held by Group Viettel.
- Viettel has around 60 million customers spread through 6 countries where operates (Vietnam, Laos, Haiti, Mozambique and Peru).
- The Group plans to spread its presence in a total of 15 countries until 2015 and enter in the top ten biggest telecommunications operator worldwide. The Group wants to cover around 500 million people until the same year.
- Their internationalization strategy focus on a strong investment in telecommunications networks (BTS and fiber optic), especially in rural areas where mobile coverage is weak and penetration is low.
- They provide telecommunication services at very low prices comparing with other players and provide special tariffs to users with low income.
- In all international operations, Viettel offered free Internet services to public schools.

Source: Portugal Telecom presentation “Overview Telekom Indonesia” and “Overview Viettel”; Tellin website (<http://www.telin.co.id>) and Viettel website (<http://www.viettel.com.vn/Home.html>).

Teaching Notes – Timor Telecom Case Study: Ten Years of Experience

The “Timor Telecom: Ten Years of Experience” case study is about the life of Timor Telecom from inception to present days. The case is divided in two distinct phases. Prior to 2003, the case refers to PT’s decision to invest in a telecom operation in East Timor (which is the case’s main focus) and after it describes the monopolistic operating activity which endures to the present, in order to confront the student with a recent market transformation: the market liberalization imposed by the government.

Therefore, this case study is a great opportunity for students:

- To study an investment opportunity in an emerging economy such as the East Timorese, characterized by a context of great uncertainty;
- To familiarise themselves with the Build Operate and Transfer model, which was a very popular project financing model used to develop strategic sectors in emerging countries;
- To understand the major risks involved in a telecom project in an emerging market and possible mitigation strategies;
- To understand how competition can promote further development of the telecommunication sector.

Suggested Questions:

1. **Within the BOT framework, please identify the major risks involved in PT’s decision to invest in East Timor.**
2. **Bearing in mind the constraints and requirements made both PT’s board and the East Timorese Government, what would you advise regarding the composition of the consortium and the equity structure of the new telecom? Among the options available, who were the best partners to constitute a winning proposal? How would they be important to mitigate the risks that you had previously identified?**
3. **Perform your own valuation of the project and provide sufficient detail. Would you go for it? Discuss the different valuation models you found suitable for valuing this project (WACC vs. APV). Would you incorporate Country Risk premium? If yes, please explain at least two different alternatives to estimate this premium.**
4. **Imagine that you were invited to the meeting scheduled by Mr. Capitão Amaro. You were asked to elaborate a detailed report about the future consequences of the telecommunications liberalization in East Timor. What would you report? What would be your strategic advice in order to smooth the impact of the new players’ entrance?**

The Build-Operate and Transfer Approach

Governments have traditionally been in charge of providing the needed conditions that lead to the social and economic development of nations. Looking at the past of East Asia countries, we have seen the public sector concerned with the construction and development of infrastructures considered critical for population's welfare, such as a national electric network, a national telecommunications network, among others... However, public sector has allowed the participation of private investment in the construction and operation of those infrastructures, for the following reasons:

- It is possible to price those non-pure public services and avoid free rider behaviour among users, meaning that private entities can receive a return on their investment⁴¹.
- Governments cannot afford investment requirements of such capital intensive industries;
- Private players possess the required managerial and technical resources to develop infrastructure in a more effective way;
- Innovations in technology allow benefits from vertical unbundling in strategic sectors;
- Multinational players can easily provide a service according to international standards, which facilitates the international competitiveness of these economies;
- Governments have a powerful tool to align private and public interests, which is regulation.

The BOT model can be defined as:

"A private party or concessionaire retains a concession for a fixed period from a public party, called principal (client), for the development and operation of a public facility. The development consists of the financing, design and construction of the facility, managing and maintaining the facility adequately and making it sufficiently profitable. The concessionaire secures a return on investment by operating the facility and, during the concession period, the concessionaire acts as an owner. At the end of the concession period, the concessionaire transfers the ownership of the facility free of liens to the principal at no cost".⁴²

The BOT approach has been seen as the most effective way to finance concessionary projects, characterized by being very capital intensive. Therefore this project finance model was used in numerous important and strategic projects which contributed for the development of various countries in East Asia.

In the last decades of the second millennium, the telecom markets in developed countries did not present a high prospective of growth and were overcrowded with competitors. The BOT model represented an opportunity for international telecom players to enter into these growing and populous markets which have historically been kept under the national governments' control. Moreover, the constant technological evolution and increasing competition among tech suppliers was driving down industry prices. Telecom operators were in position to benefit from cheaper and better technology in this mission to conquer unexplored markets. The clearest

⁴¹ For instance, national defense is a pure public service since it is not possible to charge a fee for its use.

⁴² Verhoeven (1995) as cited in Menheere and Polais (1996).

example of the industry development was the wireless networking system. The mobile phone introduction represented an opportunity for operators to cover higher portions of territory with smoother investments in the network. This was critical to achieve higher and quicker returns which could be reinvested in further development.

In the end of the twentieth century, the wireless networking system was clearly substituting the wire line telephone system in the broadband due to a greater utility and also because wireless networks were cheaper and easier to construct (see Exhibit 1).

The Risk Assessment of PT's investment in East Timor

In 2000, the information available on the current economic, social and political outlook of East Timor was clearly insufficient. Therefore, the local due diligence performed by Jardim and his team assumed a critical role during the investment decision process in order to understand possible risks and constraints that a telecom operator would face in East Timor.

This chapter of the Teaching Note aims to point out the expected risks of investing in an emerging market, naming the specific risks that a new telecom would have to face in East Timor. Risks will be allocated in four risk categories – **Host-Country Risks, Economic / Financial Risks, Technological / Operational Risks and Social Risks** – in order to provide a better understanding of possible consequences to the project.

Host-Country Risks

This category assembles risks related with the host country's political environment and its general legal and regulatory framework.

Investors rank political risks as the biggest barriers to the successful settlement of new investments in emerging markets (see Exhibit 3). One widely quoted description of an emerging market emphasizes how important is the political risk assessment before the investment decision:

*"An emerging market is the one where politics matters at least as much as economics."*⁴³

Due to various reasons, emerging markets tend to have weak and unstable political institutions, which often lead the decision power to unrepresentative elites. In such conditions, legal and regulatory framework could be drafted and applied according to minority interests, meaning a very unstable and unpredictable operating environment.

East Timor presented in 2000 a very unstable political situation without a democratically elected Government in place and neither an established general legal and regulatory framework. For the majority of investors, it was unthinkable to invest in a country in such uncertainty. The country was being governed by a UN's Transitional Administration and social order was maintained by foreign military forces. Therefore, an obvious potential risk was the political violence which might follow post-election periods or other important political moments. There

⁴³ Ian Bremmer, in Harvard Business Review (2005)

was no guarantee of safety in such scenario, especially when the foreign presence could be seen as a sovereignty threat. History had already revealed the inability of new born democratic governments to maintain order and peace during these periods.

Jardim was also concerned about the future political governance and its competency. It was crucial for the desired development of the nation to have a stable democratic regime in which different political parties and leaders would respect a strategic plan and would honour previous government treaties. However, the East Timorese people were used to living under foreign sovereignty and had never been politically educated to live under a democratic regime. The democratic dialogue had never existed, neither the freedom of expression. Usually, leadership was personified by the tribal chief, by the local Catholic leader⁴⁴ or by the leaders of the resistance against the Indonesian occupation⁴⁵. Also, East Timor presented a very serious lack of qualified personnel, unable to assume political roles. This was a major political risk that could lead the country drowning in problems related with corruption, political influences, mismanagement and resources misallocation.

The first elections for the Constituent Assembly were crucial to reveal the political maturity of the East Timorese people and their willingness to develop the country through a democratic path. The UN institutions and forces were there to help creating a stable political environment in an initial stage, but then these “novices” would have to assume the political leadership of the country.

The new telecom operator would also be exposed to a set of regulatory risks. The Concession Contract would have to clearly specify the exclusive concession period and the initial investment and operational conditions. Along time, investment and operational requirements would be reviewed according to the upward evolution of the nation’s economic and social performance. New milestones would be negotiated between the new operator’s board and a new “independent” regulatory body⁴⁶. Jardim knew that very detailed industry regulation performed by an inexperienced “independent” regulator could harm the profitability of the project. Moreover, the potential regulatory walks hand in hand with political orientation. A dramatic change in the political leadership could change regulation and threaten the operations’ sustainability.

The worst scenario possible would be the rising of a new authoritarian government demanding the full control of this strategic sector. In such scenario, the privately owned telecom operator would face a serious nationalization constraint, which could result in creeping expropriation without any financial compensation.

⁴⁴ At the time, Dom Ximenes Belo was bishop and leader of the East Timorese Church. He was very influent among the population.

⁴⁵ Many of the existent politicians who formed the National Council and then founded political parties were former leaders of the Timorese resistance, without any political background or academic qualifications.

⁴⁶ Private investors usually see the creation of independent regulation bodies in emerging economies as a host government attempt to maintain control over a strategic sector.

Economic / Financial Risk

The economic climate in the host country is seen as one of the most important variables to determine the extent to which the built infrastructure is put to use, and thereby, the profitability of the infrastructure service provider. This is even truer within the Telecommunications Sector, where the private service providers plan on recovering their investment through tariffs paid by the final consumer. Therefore, telecom operators are truly dependent of consumers' capacity in purchasing their services.

Thus, a telecommunications venture in East Timor would be highly exposed to a significant cash flow risk. The World Bank released a poverty assessment report, stating that 20% of the East Timorese population lived with less than one dollar per day in 2002 (see Exhibit 1 and 2). Moreover, these indicators had been worsening since 1999 and there was a big uncertainty regarding the nation's capacity to develop its economy.

The economic development, translated in an upward evolution of the East Timorese GDP, was dependent of numerous macroeconomic factors.

The future wealth of the country would rely heavily on the existent natural resources, namely on oil and gas reserves located in the East Timor Sea. In 2001, their sovereign jurisdiction over offshore territories was still being negotiated with neighbour countries (Indonesia and Australia). This was a sensitive topic, since Australia was one of the top foreign aiders and Indonesia was a giant economy in the region. There was little negotiation margin to the recent East Timorese leaders.

On other hand, from the moment that an economy becomes excessively dependent on oil revenues, the blessing of possessing relative abundant natural resources can easily turn into a curse. Based on the experience of other natural resources exporters, the future government can easily fall on the temptation of over-spending, which would raise the relative price of services and goods (increasing inflation) and draw resources away from the non-oil traded goods sector, delaying its development. Government spending could also easily exceed capacity to absorb, reducing the public investment efficiency. Moreover, the volatility of revenues promotes unstable public investment patterns making the economy more prone to business cycles.

At an initial stage, it was also expected that foreign aid could boost the economic and social development of the nation. However, corruption and bribes were common and could deviate aid from its initial purpose: the economic and social development of the nation.

Another pressing concern was the macroeconomic effect related with the departure of UN institutions and much of the expatriate community. At the time, there were no certainties about how much longer UN would stay in East Timor⁴⁷. However, it was certain that UN's departure would result in loss of employment and income to the East Timorese economy. It would also mean a great loss of technical expertise. After the arrival of foreign military forces and later on the arrival UN administrative personnel, the business and support services sectors were

⁴⁷ UN planned to stay more two or three years, according to the Information Memorandum released during the launch of the BOT tender.

boosted by the high purchasing power of the expatriate community. Prices were indexed accordingly with foreigner's income.

UN departure was a sensitive topic in PT's business plan. The new telecom operator would only benefit with the extension of the international community's presence. (See next chapter).

East Timor adopted the US dollar as official currency, based on the UN advisory. The reasoning behind this decision relied on the urgency of a stable and well accepted currency in the global markets. A strong and stable currency would partly hedge the risk of high annual inflation, which was likely in periods of high GDP growths. Moreover, the East Timorese economy would need a general accepted currency to enhance international trade and Foreign Direct Investment (FDI)⁴⁸, which was critical to the reconstruction of strategic infrastructure. Obviously, the flip side would be the lack of future exporting competitiveness against regional players. However, the most likely exported good was oil, which was negotiated in international markets in US dollars per barrel.

As a matter of fact, the future telecommunication carrier would benefit from the circulation of a strong currency in East Timor. It would have more power to negotiate interconnection tariffs with neighbour telecom carriers, which operate with weaker currencies. This was an important topic considering that international calls would compose a great portion of first years revenues, due to international community's presence.

The last but not least important risk that the new telecom would have to bear in East Timor was the lack of debt providers willing to finance the future growth needs of the company. Local financial institutions were still giving the first steps in East Timor⁴⁹, and commercial lending was still incipient. As a result, the expansion and improvements of the telecom network would be dependent on successful cash flow generation and shareholder loans.

In order to develop an economy resilient to the economic impact of UN's departure and not wholly dependent on oil and aid, the macroeconomic challenge was to enhance the private investment climate, and consequently attract more Foreign Direct Investment (FDI), foster the development of non-oil traded goods sectors and increase productivity and employment levels of those sectors.

Technical / Operational Risk

The challenge of building an almost completely new telecommunications network within the deadline stipulated by ETTA in a country like East Timor was huge. However, it was not less challenging than the objective of running operations in a profitable and effective way, in accordance with international quality standards. Therefore, it is reasonable to separate risks according to the different stages of the project. The execution risk gathers all the possible constraints and problems during the construction phase of the new broadband network, as also

⁴⁸ The option for the US dollar currency was a much stronger guarantee against vertiginous devaluations of a national currency, which were probable to occur in periods of high inflation.

⁴⁹ At the end of 2000, the Banco Nacional Ultramarino (BNU) was the single financial institution in East Timor. In 2001, the Australian ANZ won a license to start providing banking services.

during revamping and expansion phases. The operation risks would be the ones faced by the new operator's management during the operational activity.

Jardim was aware of the challenge. East Timor presented a set of characteristics that had never been addressed together on previous PT international investments. First of all, the natural characteristics of the country were by themselves a real constraint. The north and south shore of the Timor Island is divided by a high range of mountains. Although most of the population was concentrated in the north shore of the island (Dili and Bacau), ETTA required the same development commitment in other regions of the island.⁵⁰ Thus, the natural characteristics of the island led to the isolation of some regions, a problem worsened by the lack of road maintenance. Poor roads through a very rugged territory would definitely hinder the access of the needed materials and equipment to construct the network in remote zones. The risk of personal and material accidents was considerably high. Dili's port facilities were also very rudimental, which could delay the arrival of crucial imported goods and materials. Finally, the tropical climate with an extended raining season and the lack of assets' security would also impose a great replacement CAPEX capacity to the future operator, in order to maintain the network constantly functional.

Managing and running telecom operations in East Timor would certainly not be a "walk on the beach". There were serious operational issues that must be addressed before signing the commitment with ETTA.

The current status of the power supply infrastructure was worrying. The power grid was currently being subject to reconstruction and expansion according with the priorities of the Trust Fund, but Jardim knew that the telecommunication infrastructure could not rely on the national power supply grid. The consequences would be constant power breakdowns and the interruption of mobile telecommunication services. The solution would be equipping all sites and BTSs with fuel power generations, which means a very costly operational expenditure.

Human resources were also of top concern. ICTs related industries need qualified human capital. Even operating under monopolistic conditions, a telecom carrier would always need qualified staff. Those are indispensable to deal with technical and business specificities of a telecom operation. However, qualified staff was a scarce resource in East Timor. The population presented high rates of illiteracy due to a very low quality educational system. Despite being a fairly inexpensive manpower, East Timorese workers would take a lot of time and resources to learn the fundamentals of the industry. The language barrier would certainly hinder the training process, since the majority of the active work force did not speak a minimum of Portuguese.

Moreover, the qualified staff required to assume leadership positions would represent costly resources to the firm. Delivering the control of the firm in the hands of nationals was unlikely, meaning that Jardim would have to find a team of expatriates to run operations. The problem was that East Timor did not seem a very pleasant place to live and work at the time, due to lack of security and general life conditions.

⁵⁰ The initial investment milestones within the Concession Contract demanded that all district capitals must be connected by wire, within the broadband.

The new telecom carrier would also have to find the best distribution channel to reach clients. In the beginning of the millennium, telecom operators in emerging markets relied on different pre-paid systems to sell telecommunication services. Credit was only given to the biggest and most reliable clients, such as corporations or the government.

The pre-paid system would have to be forcibly imposed in East Timor, due to the high credit risk. The main question was how to deliver a pre-paid system without incurring in a great loss of income? A possible solution was hiring distribution agents, who were responsible to organize external outsourced work force in teams. These teams would be spread all over the country, selling pre-paid airtime credits to future clients. The main problem would be find trustable distribution agents among population.

Social Risks

At an initial stage, it was important for PT to gain the confidence and the acceptance of the Timorese community. There was a residual concern about how would the population interpret PT's investment move.

Would PT be accused for trying to step in East Timorese market with political intentions? Would PT be really be concerned with developing an affordable and accessible Telecommunication Sector to the East Timorese? Or was PT only interested in exploiting its monopoly during the following fifteen years?

Therefore, Jardim was aware that the new telecom operator would have to be sensitive to the population's needs; otherwise it would face serious reputational problems. As sole service provider, the new telecom carrier must be commercially profitable but also aware that it would play a crucial role in the nation's development.

The Risk Mitigation Tools

Once the risks have been identified, Jardim and his team would now have to think the best ways to mitigate or share part of the operations' risk potential.

A Concession Contract under the BOT Model

The BOT tender showed publicly the host government's interest and commitment to engage with private players in the mission to develop the telecommunications network in East Timor. Partnering with host governments is considered crucial to an investment project's success in emerging markets (see Exhibit 3). Private investors seek some market stability which could be provided by governments through regulation, licences, or concession agreements.

In our case, the Concession Contract was itself a fundamental tool to mitigate part of the risks inherent to the project. Despite all the uncertainty around the future political leadership of East Timor, the Concession Contract was an official document ratified by the United Nations. It guaranteed an exclusive concession licence to perform telecom operations for an extended period in East Timor. This was a significant safety cushion for interested investors, since they

knew that all new future democratic governments would have to respect this contract until the end of the concession period⁵¹. Nevertheless, it was truly important to sustain good relationships with all political parties and players (Governments and opposition) because, at the time, they exercised a tremendous influence on public opinion.

Moreover, the concession contract also offered a range of conditions that would ease the construction of the network, and consequently it would minimize the investment's execution risk. The future telecom carrier would benefit from tax exemption over imported goods and equipment needed to develop the network. Moreover, the firm would also be legally authorized to install sites and stations wherever it found most appropriate to maximize the efficiency and the operability of the network.

The exclusive concession licence was an obvious decoy used by ETTA and the National Council to attract private capital and expertise, since it would protect the new venture from market competition. Even if the economic outlook remained uncertain and it was not possible to forecast precisely the pattern of telecommunication services demand, the concession contract guaranteed that all market growth potential would be enjoyed by the new operator, minimizing the cash flow risk.

The Consortium

The most preferred strategy of private investors to hedge against possible risks in emerging markets is using joint venture or alliances with local companies (see Exhibit 3).

The reality of East Timor was the proof of this evidence. One of BOT model's core fundamentals is to encourage the sharing of risks among different players. The main question was how to draw the most valuable partnership which would maximize the new telecom's future and the return on investment made by PT. Jardim's final decision would have to bear simultaneously the constraints imposed by PT's board, the government's requirements and, at the end of the day, it would have to convince ETTA's specialists that the whole Consortium was truly committed in developing the Telecom Sector in East Timor.

Jardim was uncertain about what would be the best way to address this crucial question. He pictured two possible alternatives in his mind in order to comply with constraints imposed both by the board and the ETTA.

A joint venture?

Jardim considered a possible partnership with an international telecom carrier, potentially interested in joining a venture with PT. Checking the list of constraints, there were no limitations regarding a joint venture possibility. Since 30% of the future telecom's equity was already "booked" by ETTA's requirement, entering in a fifty-fifty joint venture would comply

⁵¹ Except if market conditions or needs would demand the cession of the contract. This was what happened in 2010, when the East Timorese Government decided to liberalize the market in order to boost industry's development. We will discuss this topic further in this Teaching Notes.

with the board's constraints⁵². On the other hand, ETTA did not have any limitations regarding two telecom players leading the future national telecom.

Although no public expression of interest had been showed, Jardim's due diligence concluded that Telstra and Telkom were studying the possibility of stepping in the East Timorese market. Consequently, these two international telecoms could be suitable alternatives to partnership with.

Telstra was the "incumbent" operator in East Timor since UN restored the peace in the country. They were providing telecom services on a temporary basis. Telstra had not committed any substantial investment in the network's development until then and the service through satellite connection was very expensive. The biggest advantage of joining in a partnership with Telstra was the fact that this firm was already established with own resources in East Timor. The accumulated knowledge about the market and about its dynamics during the past three operating years in East Timor would be critical to develop a sound strategic plan, minimizing the execution and operating risk of the new telecom venture. The experience also revealed the technical quality of its staff, since they managed to turn existent telecom assets left by Indonesians into operational ones.

However, there were some drawbacks that could threat this partnership. In the first place, there was an increasing social dissatisfaction regarding Telstra's activities in East Timor. Due to high tariffs imposed in mobile broadband services (which were the only possible connection between districts), the population did not have the means to afford telecom services. The international community, mainly NGOs, started accusing the company of being only commercially focused on enjoying its status as a single service provider. Additionally, Telstra had recently faced embarrassing accusations regarding the use of local child labour in its distribution channels.

Although Telstra's recent past could have a negative impact on the final tender's decision, the rising Australian political influence among the recent East Timorese politicians could yield an opposite decision. Australia played an important role to cease the conflict in East Timor sending military forces and it was one of the leading country donors.

The alternative partnership would be another regional telecom giant: Telkom Indonesia. The state owned company was the biggest telecom services provider in Indonesia, a country composed by hundreds of habited islands. In fact, Telkom was the single service provider in the western part of the Timor Island and in neighbour islands, which have similar natural characteristics.

Telkom would be a valuable partner in constructing the network. Its local expertise in constructing a national network through all Indonesian islands would be a guarantee of efficiency. They had experience in settling networks in rugged islands, with lack of infrastructures. Additionally, its regional dimension would certainly provide a bigger negotiation power dealing with equipment suppliers. These both factors combined were a guarantee of a smother CAPEX and compliance with ETTA's timing requirements.

⁵² PT's equity participation would be 35% in this case, it was roundly the 1/3 limitation imposed by the board. By other hand, the selection criteria was in accordance.

The partnership with Telkom would also guarantee numerous operational advantages. Provided with an abundant, relatively cheap and increasingly educated work force, Telkom could guarantee lower operational costs in exchange of quality services. The language barrier would also be easier overpassed increasing the effectiveness of training provided to local employers. Commercially, the new telecom carrier would also have more negotiation power to deal with other regional carriers, regarding interconnection costs and access to worldwide data. All things considered, Telkom's solution would benefit the new venture's penetration in the East Timorese market, since it was possible to deliver the service at more affordable prices to the final consumer.

However, the memories and wounds of the Indonesian legacy in East Timor were still fresh. Despite all the economic and operational advantages of partnering with Telkom, PT knew that this would be a politically handicapped solution. The probability of East Timorese accepting an Indonesian player among the leaders of the national reconstruction was almost zero. Moreover, Telkom was a leader state owned company in a large country such as Indonesia, which could hinder the joint governance of the new telecom. Finally, there was a huge risk of local community seeing this partnership as a joint effort of two former colonizers in resuming their economic and political influence in East Timor.

Or looking for exclusive control?

The alternative to entering in a joint venture was drawing a governance scheme in order to comply with PT's board requirements. If the option was to fully control and assume full responsibility over the future firm, PT would theoretically have to undergo more than half of the firm's equity, which was not compliance with superior requirements. The alternative was to create a financial vehicle with other players, in which PT would have a majority position. On its turn, this financial vehicle would hold a major equity participation in the future telecom company, allowing PT to have full control.

As referred in the case, Jardim's local due diligence encountered possible alternatives matching this model perfectly. None of them were interested in assuming the operational management, which should be addressed by PT.

Sociedade HAIRII, the Portuguese public investment fund, was created with the intention of strengthening the economic relationship between Portugal and East Timor and to reinforce the Portuguese commitment in supporting the nation's development. In PT's perspective, the fund would provide political strength to the application and ease relationships with future political leadership.

Fundação Oriente was eager to financially support PT's project. Their mission of reinforcing Portuguese linkages to former colonies in the East was mirrored in such investment, mainly financed by Portuguese capital. Moreover Fundação Oriente would represent the future social awareness of the firm. Its association with the project would create a positive impact among the local community as also would help the future firm in recruiting the best local workforce.

Vodatel Systems Inc. was a key partner in PT's standalone application. As previously referred, the credit conditions in East Timor were very difficult which emphasized the importance of

finding a partner capable of ease the initial investment effort. Vodatel was growing in several Asian markets, as a top provider of telecom network solutions. Their accumulated expertise would certainly add value to the project, especially during the design and construction phase of the network. Additionally, Vodatel had an extensive network of contacts with regional equipment suppliers (mainly Chinese and Japanese), which would be critical to ease the access to better credit conditions and dismiss leveraging.

In what concerns the daily operational life of the future telecom company, the standalone application would require the future management team to have the needed flexibility and experience to overpass operational challenges.

The 10% of equity saved for national institutions or individuals would have to be distributed aiming further risk mitigation. The lack of existent business corporations in East Timor would force the distribution among individuals. Therefore, it was important to select local business people able to intercede for the future company's interests.

Investment's Financial Assessment

Timor Telecom's case study reveals to be a great opportunity for finance students to learn about valuing investment projects in an Emerging Market. Despite all the risk mitigation tools discussed above, a specific investment in East Timor bore a high risk profile that should be taken into account when assessing its economic viability. Although students are not asked to provide specific sales and costs forecasts for the concession period, the document explains how those can be forecasted in such a context⁵³ and then proposes a Discounted Cash Flow Model in order to include the country's risky profile in the project's valuation.

Estimating Future Free Cash Flows

PT's application was awarded with a telecommunications licence of fifteen years, meaning that the business plan should forecast cash flows for the same period range. Since the negotiations with the Timorese Government occurred during the year of 2002 and a period of fifteen months was stipulated for building the network, sales revenues should be forecasted between 2003 and 2016.

Operational Revenues Forecast

Timor Telecom would render a limited type of services within its national broadband. The fixed service encompassed the wire line connection telephone and Internet through dial up, while the mobile service would offer voice and the short message system (SMS). At the time, those were the range of possible services to offer in East Timor.

⁵³ The following estimates were performed by the author.

In 2001, the telecommunications industry was changing. The industry was moving towards the mobile broadband at the expense of fixed services, especially in developed countries (see Exhibit 4). The business plan took this trend in consideration despite the information available.⁵⁴

Sales forecasts were based on the expected monthly Average Revenue per User (ARPU) and expected market penetration of each service, bearing in mind that both value drivers were dependent on the economic and social performance of the nation.

It is also important to refer that it was considered a scenario in which UN personnel would end their mission in East Timor at the end of year 2006, creating a negative impact in TT's sales during the following year.

Mobile Service

The strong presence of the international community in East Timor was expected to support telecom revenues during the first years of operations. The demand for mobile services was clearly dominated by foreigners who used mobile devices for professional and personal purposes. It was reasonable to assume that 80% of 15 thousand foreigners living in East Timor in 2001 would use a mobile device. During the first years of operations, expected mobile ARPU would be driven accordingly with foreign purchasing power. Since the majority of the international community in East Timor were Portuguese, Australians and Singaporeans, it was reasonable to look over ARPUS (2001) in these countries in order to understand how much they were willing to pay (see Exhibit 5). However, monthly ARPU should be reduced to levels which permit a portion of East Timorese population consumes the services. Benchmarking with the Indonesian ARPU, the initial ARPU was fixed at \$22. Regarding the starting market penetration, the author assumed that the new telecom would enter with a 2,2% penetration, considering only 0,8% of Timorese demand⁵⁵.

As referred in the case, BOT requirements demanded that network capacity must cover 50% of the Timorese population during the concession period. Nevertheless, it was not predictable achieving such market penetration due to the economic constraints lived by the Timorese. Therefore, the business plan was elaborated under a conservative scenario of reaching only 30% of market penetration at the end of the concession, after a progressive increase. It is important to refer that almost half of the East Timorese population was under the age of 14 and therefore non potential consumers. As market penetration increased along the years, the ARPU would decrease meaning that telecom services became more affordable to the population. The Business Plan assumed a decrease from \$22 to \$11 in order to achieve the market penetration goal.

Fixed Service

The majority of fixed service sales were expected to be obtained from local businesses, governmental institutions, NGOs and UN institutions. In spite of the Government's effort to positively discriminate the price of fixed services to households during the first years, the

⁵⁴ The UN's Information Memorandum predicted a very reduced weight of the mobile service in future sales of a telecom operation in East Timor

⁵⁵ Author's assumption was based on historical mobile market penetrations in Cambodia, Laos PDR and Indonesia (see Exhibit 6).

increasing demand of mobile would jeopardize the demand of the fixed broadband. Thus, as a starting point, it was considered that new telecom would have half of the fixed subscriptions existent prior to the turmoil⁵⁶, representing a market penetration of 0,40%. It was assumed a market penetration goal of 2% to be accomplished during the concession period. The rationale behind was that East Timor would be able to develop a business and services sector that would demand fixed broadband services.

The fixed broadband ARPU should be higher than the mobile ARPU since there were fixed monthly fees associated to this service and a higher pressure to recover from the large investment required to construct a wire network. High initial ARPU's were justified by the presence of UN personnel and their need to perform international calls.⁵⁷

Wire Line Internet Service

Internet Service would be provided through wire line telephone connection (dial-up or broadband) during the concession period. The lack of a submarine cable connection with the exterior required a satellite connection to access international content and data, which was extremely costly for the new operator. Based on information available by ANACOM⁵⁸ regarding the monthly ARPU of Internet Services in Portugal registered in 2001 (117€), it was assumed that the new venture would start with a \$200 Internet ARPU. During the concession period ARPU was expected to decrease progressively in order to allow access to a higher portion of the Timorese population. In terms of market penetration, it was estimated based on the number of fixed telephone subscriptions. Projections were made assuming that 20% of fixed telephone subscriptions would also demand and consume Internet services. Along the years, it was forecasted that market penetration would increase due to the higher penetration of fixed telephone services and also because a higher percentage of these fixed subscriptions would demand Internet services. the increasing number of business and service companies that would be created in East Timor were considered, and also the increasing need of Internet services to provide a higher education to the Timorese youth. It is important to refer that Internet service was not included in the exclusive concession, meaning that other institutions and organizations could create their own conditions to get access to the worldwide web.

Sales of mobile equipment

The telecom would also provide the necessary equipment to get access to the different services provided. For the sake of simplicity, only mobile equipment sales were considered. Mobile subscription gross adds were computed in each year in order to forecast demand of mobile devices (see Exhibit 7). The sales volume of mobile equipment was calculated bearing in mind the great influence of the parallel economy in East Timor. It is even more serious when it is related with technologic equipment. Thus, it was considered that only 20% of demand would buy original equipment sold by the operator at an average price of \$100.

⁵⁶ Based on Information Memorandum released by UN, there were 6752 wire line subscriptions prior to the period of conflicts.

⁵⁷ The value of \$41 for initial ARPUS was provided by the original Business Plan elaborated by PT. The following evolution was based on author's estimates.

⁵⁸ In "Relatório Sobre a Situação das Comunicações 2005", ANACOM

Operational Costs Forecast

The operational costs were calculated through an EBITDA margin over Operational Revenues. The margin ranged between 30% in first years of operations to 45% as the future company would gain operational efficiency⁵⁹. This approach aims to consider the dilution of fixed costs as long as operational activity increases.

Exhibit 8 shows the expected operational cost structure, where we can see the big influence of SG&A related costs, mainly due to the lack of supportive structural infrastructure in East Timor (power supply, roads). Despite of cheap local work force, there is a significant portion of costs related to Wages & Salaries, justified by the crucial presence of qualified people in the top management who demanded high remuneration to work and live in East Timor. Expenses related to marketing and publicity revealed the lack of competition.

Investment Needs Forecast

PT's challenge in East Timor was ambitious and extremely capital intensive. In order to comply with short term BOT requirements and with the short term PT's strategy, the initial investment amount would be between 22 to 25 Million USD. The majority of this amount would be used to build and develop the new telecommunications network. The national telecommunications network was completely destroyed despite the existence of some functional assets around the city of Dili. Those were valued at 10 Million USD by UN specialists and could be incorporated in the future wire line network. Thus, the Business Plan considered an initial investment of 12 Million USD of which 5 Million would be invested in 2002 (year 0) and the remaining 7 Million USD would be used during 2013, the first year of operations. Moreover, PT's specialists knew that the project's economic profitability demanded a constant reinvestment in order to follow up the increasing number of subscriptions. These annual capital expenditures would be necessary to reinforce and expand the existent network capacity according to actual needs. An average of 15% of Operational Revenues should be reinvested in the network in order to achieve the 30% market penetration goal until the end of the concession period. Tangible and intangible assets had a life expectancy of 10 years⁶⁰.

Despite being a very capital intensive industry regarding fixed assets, telecom operators are able to finance by themselves their own working capital needs. Usually, telecom operators with large proportion of prepaid customers have balanced working capital results due to their ability to receive money in advance from customers (pre-paid system) and benefit of larger payment periods for their needs. In case of emerging markets, the credit risk is so high that only high income customer segments have access to credit from the operator (traditional post paid services). The Business Plan assumed that working capital needs would follow a linear behaviour according to revenues. Benchmarking with working capital needs of 4 comparable

⁵⁹ EBITDA margins were assumed to be similar to Industry benchmarks in developing companies, including PT operations in Africa.

⁶⁰ This is the common depreciation rate of telecommunication assets.

telecom operators⁶¹ during 2000 and 2001, it was possible to achieve a Net Working Capital/Operational Revenues of -15%.

Free Cash Flows to the Firm

Going through all the required assumptions explained in previous points and assuming that the new telecom operator would have to pay 30%⁶² of its taxable income, the FCFF map is shown in Exhibit 9.

The payback period of this project is 6 years and 8 months and the Internal Rate of Return is 29%.

Project Valuation

At this point it matters to determine the rate which would be used to discount the free cash flows originated by the project. The methodology to determine this rate followed some assumptions taken by the author in order to be possible to use a proper valuation method, available in Finance Theory. Those assumptions are to some extent uncertain but at the same time needed, especially when assessing a project investment in a country where market information is not available.

PT's investment in East Timor revealed to be a very hard valuation exercise due to lack of reliable market information. The author decided to perform a Discounted Cash Flow model, once the purpose of this case was deciding whether or not to apply for an exclusive concession licence in East Timor and how much would value the right of operating in those conditions.

At a first stage, it is important to observe the financing scheme designed by PT for Timor Telecom. Based on the BOT requirements and the initial strategy adopted for TT, PT presented a business plan where tangible assets were financed 100% by equity. At this stage, PT and Vodatel would also contribute to finance the initial construction of the network, through shareholders' loans. This shareholders availability and the extremely high cost of local long term debt led to this decision. Although a credit line of \$10 Million had been negotiated with a local financial institution to finance punctual Working Capital needs, the author considered this interest bearing debt should not be incorporated in the capital structure of the new firm. As previously explained, it was not expected that TT would face working capital constraints if operational revenues followed a positive growth.

Thus, the discussion about which model should be used to discount the free cash flows is not relevant since initial capital structure of the firm would be 100% equity. Moreover, it was neither expected to change. The discount rate should be equal to the expected return of TT's shareholders, known as Cost of Equity.

⁶¹ Telkom Indonesia, Digicel Malaysia, Indosat and Phillipine Long Distance Calls

⁶² This was the actual corporate tax in 2001 for the telecom industry. In "Unofficial Consolidation of UNTAET Regulation No. 2000/18 as Amended on a Revenue System for East Timor", 2000.

Estimating the Cost of Equity

The cost of equity was estimated based on the CAPM model, the most widely accepted model by practitioners to determine expected return of equity holders. Additionally, Country Risk Premium was included once East Timor presented significant political and force majeure risks that should be incorporated in the discount rate.

$$K_e = R_f + \beta \times MRP + \text{Country Risk Premium}$$

Where R_f stands for the risk free rate and represents the opportunity cost for investing in TT; β stands for the TT's beta and represents the incremental risk of investing in TT related to a well-diversified stock market; and MRP stands for the expected market risk premium of well diversified and liquid market.

The risk free rate used should be denominated in the same currency as the company's cash flows (US dollars) and it should be sufficiently liquid to represent the current market expectations. In order to satisfy these criteria, it was considered an average of weekly returns of the 10 year US Government Bond (USGG10YR) from 2001. The average just intends to strip out one-off effects that could bias the result by just looking at one observation.

Beta was estimated through a comparison analysis with other telecom players that provided the same range of services as TT in the region of South East Asia. In order to obtain reliable market information for this case, the author assumed that the best TT's proxies at the time would be two Indonesian operators, Telkom (TLKM IJ) and Indosat (ISAT IJ), the Philippine Long Distance Call (TEL PM) and Digicel Malaysia (DIGI MK) (see Exhibit 10). After deleveraging each company beta and performing an average, the author assumed that TT's beta would be the unlevered industry beta (0,547) since no debt was involved in the financing scheme.

Regarding the Market Risk Premium it was assumed 5%⁶³. The discussion about which is the most accurate value for MRP goes beyond the scope of this case study.

In order to address the question of Country Risk Premium (CRP), two different approaches were used.

Country Bond Default Spreads

This method intends to use ratings assigned to a country's debt by rating agencies. The primary objective of these ratings is to inform investors about countries' capacity to repay their debt and interests. However, ratings are computed using several factors that also drive equity risk, such as political stability, national budget and trade balances. Through these ratings, it is possible to determine default spreads over a riskless rate. The rationale behind is that the spread would represent the premium demanded by investors to invest in that country's debt and bear market specific risks. Referring back to this case, once again there was no reliable market information about the East Timorese market. East Timor did not issue public debt and consequently it was not under the scrutiny of rating agencies. Once again, it was necessary to assume that Indonesia would be the most accurate proxy for East Timor.

⁶³ In "Valuation – Measuring and Managing the Value of Companies" (2010) - McKinsey.

Long term Indonesian debt (10 year Government Bonds) was rated as B3 in 2001, judged as a speculative and high credit risk asset⁶⁴. Taking in consideration Aswath Damodaran's studies in 2002 (see Exhibit 11), the spread between the Indonesian 10 year Government bond and US Government with equivalent maturity amounted to 8,50%.

Relative Standard Deviation

The Relative Standard Deviation approach states that volatilities of emerging markets equities can provide a reasonable sense of the risk, when then compared with risk premium of a mature and well diversified market.

Volatilities are commonly measured by the standard deviation in stock prices; higher standard deviation means more risk associated to that stock. Thus, it is possible to obtain a measure of relative risk by scaling the standard deviation of the emerging market against the mature market.

$$Relative\ Standard\ Deviation_{Indonesia} = \frac{Standard\ Deviation_{Indonesia}}{Standard\ Deviation_{US}}$$

The Equity Risk Premium in Indonesia could be achieved by multiplying its Relative Standard Deviation with the premium used for the US stocks (5%).

$$Equity\ Risk\ Premium_{Indonesia} = Risk\ Premium_{US} \times Relative\ Standard\ Deviation_{Indonesia}$$

Assume that we are using a 5% Risk Premium for US and we had observed an annualized standard deviation in the S&P 500 (SPX) between 1999 and 2001 of 21,2%, whereas the Jakarta Stock Exchange (JCI) reported an annualized standard deviation of 29,3% during the same period. The Equity Risk Premium in Indonesia using these values would be 6,89%.

The Country Risk Premium for Indonesia can be isolated by performing the difference between both market premiums, yielding a result of 1,89%.

Comparing the results of both approaches, one realises that the Relative Standard Deviation yields a much lower result than the approach using Credit Default Spreads. Relative Standard Deviation approach can understate the equity risk premium of emerging markets, once there are significant problems when comparing standard deviations in markets with completely different market structures and liquidity. In 2002, a mature market such as S&P 500 had a different equities composition and it is much more liquid than the Jakarta Stock Exchange. However, the CDS approach has also inconvenient related with the lack of transparency

⁶⁴ Source: Moody's website (<http://www.moody.com/>)

pointed to the ratings methodology⁶⁵. Critics point out that this methodology is too focused on a country default risk and ignores other risks that can influence equity markets and it did not fully reflect investors' expectation about the future.

When computing the cost of equity, results are dramatically different and consequently would have a huge impact on the project's valuation (see Exhibit 12). Project's Net Present Value (NPV) is \$9,495 Million dollars discounting the FCFs at 16,27%, while project's net present value would be \$21,499 Million if FCFs were discounted at 9,66%. Both approaches presented a positive NPV of the project.

Market Liberalization Process

In the past, the available telecommunications technology was very costly and it demanded a huge financial effort in order to provide telecom services. For this reason, it was common to consider that this industry would benefit from "natural monopolies" where national governments played a very important role by providing themselves exclusive telecom services, through state owned telecom companies.

Over the years, the exponential importance of telecommunications in the social and economic development of nations justified the interest of more players in exploring this industry. Consequently, the sector experienced a proportional increase in innovation and research that led to cheaper available technology. The world entered in the Globalization Era.

There was no longer justification for protection policies or inefficiencies caused by public management. The Telecommunication industry's evolution boosted the introduction of competitive policies in national telecom markets and suffered a wave of general privatizations. The Government's role within the sector changed from operator to regulator. Chronologically, this reality was felt first in the most developed countries⁶⁶ and then in developing countries⁶⁷.

Forecasting the Future Situation of the East Timorese Telecommunications Market

The Timor Telecom's case aims to extend the scope of the study to the liberalization process that the Timorese telecommunications sector is currently going through. The Government included liberalisation in the Strategic Development Plan 2011-2030 established as a top priorities. It is important to discuss what would be the possible benefits and challenges resulting from the liberalization, and how TT and new expected operators (Telin and Viettel) would be affected.

⁶⁵ For instance, it is somehow incomprehensive how India did not see its rating changed in the period between 2004 and 2007, when it had achieved a double digit growth.

⁶⁶ The early 80's brought the liberalization of the British and American telecom markets. In Portugal the law that allowed the entrance of new competitors was approved in 1989.

⁶⁷ The liberalization approval in India, nowadays the most competitive telecom market in the world, was only achieved in 1994. Indonesian telecom market was liberalized through the "Telecommunications Act of 1999".

The main motivation behind the drive for liberalization was extending Information and Communication Technologies (ICTs) access to the whole population. The biggest concerns were the low rate of Internet usage and the high portion of population that remains isolated from progress and social development. By letting more operators entering the market, the government expects that sector prices drop.

Typically, new competitors try to conquer market share by practising lower tariffs than the ones being practised. This initial strategic move intends to convince customers of the incumbent operator to consume their services. There is also the possibility of the incumbent operator to be the first one driving prices down in order to maintain its customers. Theoretically, the price elasticity of the telecom industry will guarantee increase on demand. Industry's elasticity and the possibility of achieving the market full penetration potential will drive the growth of industry revenues. As "price wars" start in East Timor, ICTs will be more affordable for the population and consequently more accessible. Social welfare will be boosted by new opportunities that will accrue from a more informed and global integrated society.

The liberalization will also positively influence the Timorese economy and benefits may be felt in the short term. The entering of two new international players will bring Foreign Direct Investment (FDI) and consequently increase employment levels. Once more, local construction industry will benefit from the actual telecommunication sector needs. FDI will mostly be redirected to the construction of a new telecom network, since the existent infrastructure is not able to support equipment from more than one operator. Recent legislation has been published in order to avoid overinvestment within the sector, but this is a common reality in liberalization processes.

Competition should bring quality and efficiency improvements. The pressure of achieving highest possible market share will turn operator's focus into consumer needs. "Price wars" should walk hand in hand with quality improvements on services, since the operator will need to offer the best quality price relation to its customers. However, this is not always so. Furious "Price wars" can also lead to decreases in quality. In a scenario where players are only focus on decreasing ARPUS to conquer market share, there is a breakeven point when operators start to become careless about the service quality.

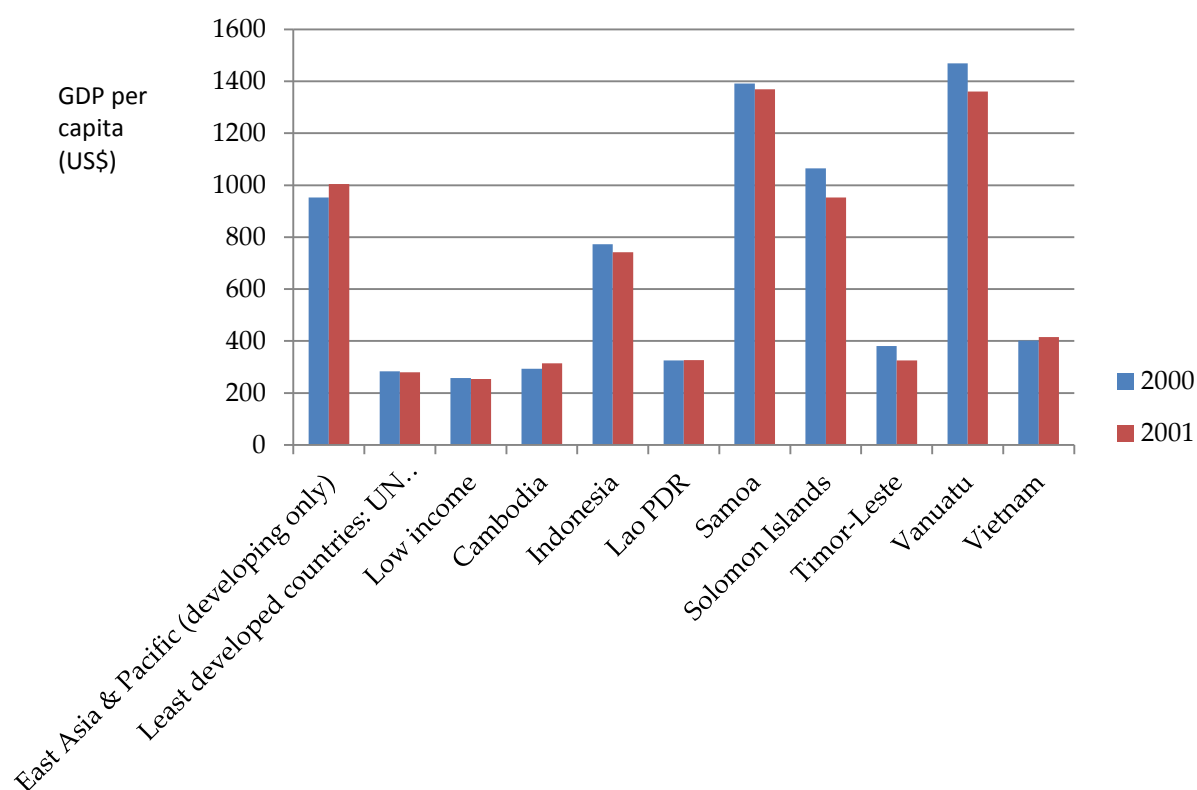
A consumer focused strategy will demand higher operational costs, such as marketing, commercial and client support costs. Thus, operational effectiveness assumes a critical importance, especially in the survival of the incumbent operator. TT was used to experiencing healthy operational margins (see case Exhibit 12), but the new reality will bring fierce competition willing to conquer market share.

The unknown of industry specialists related to future market shares of each operator. It is known that Telin aspires for a 43% market share within 4 years, and Viettel is well known for its aggressive price strategy among rural populations. There is also the big concern about the market being able to sustain three different operators. Industry specialists denote that it is unlikely for the market to be equally divided (33% of market share for each operator) and there is a high probability of one operator being left with residual market share. If we look to the actual TT's numbers it is reasonable to assume that 60% of market penetration is almost the full

market potential. Nowadays, children under the age of 14 still represent 46% of the total East Timorese population and this segment cannot be considered as potential customers.

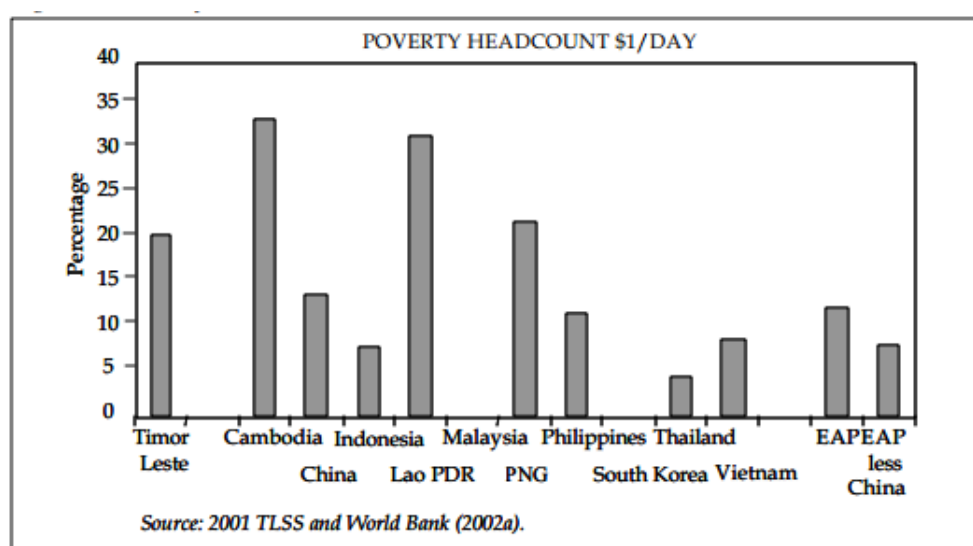
In the run for market share, it is recognized initial advantage to TT since it is already established and enjoys from its local expertise and know how. It is also common to see initial market inertia, with customers being reluctant to change their subscriptions. Another TT's favourable factor is having its own network which suffered a recent expansion and is now capable of providing universal access to almost the entire Timorese population. Telin and Viettel will definitely experience huge cash flow demand in the first operating years. However, their investment capacity and their successful experience enjoying liberalization opportunities in other emerging markets promise to shake the Timorese Telecommunication Market in the upcoming years.

Exhibit 1 – GDP per capita in East Timor compared with its peers



Source: World Bank Data

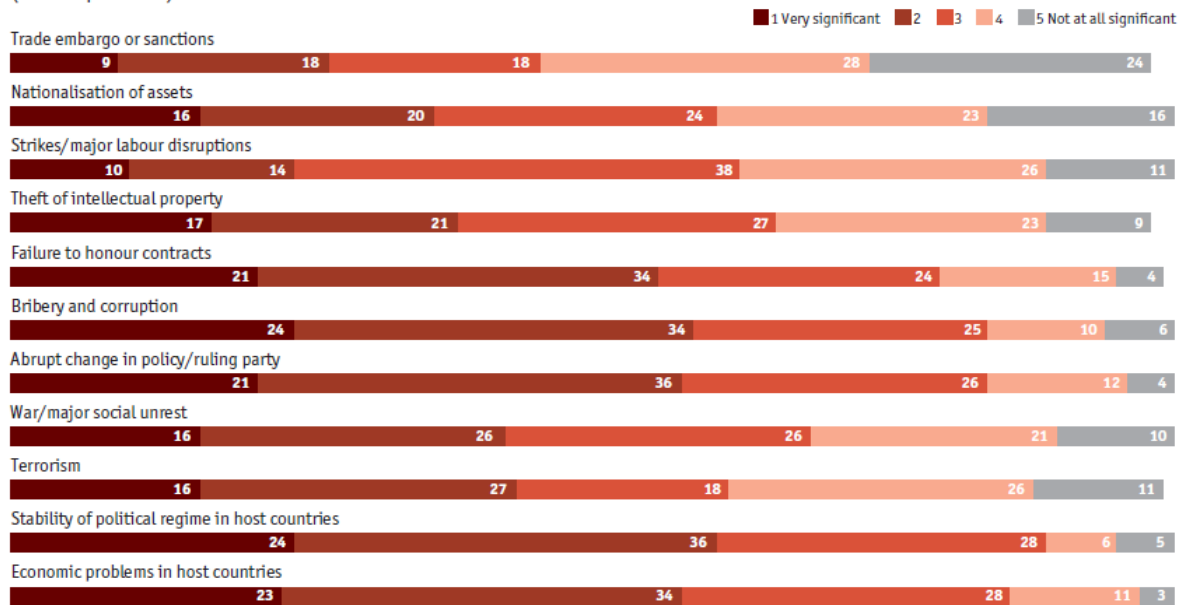
Exhibit 2 - Poverty Headcount \$1/day (as % of total population)



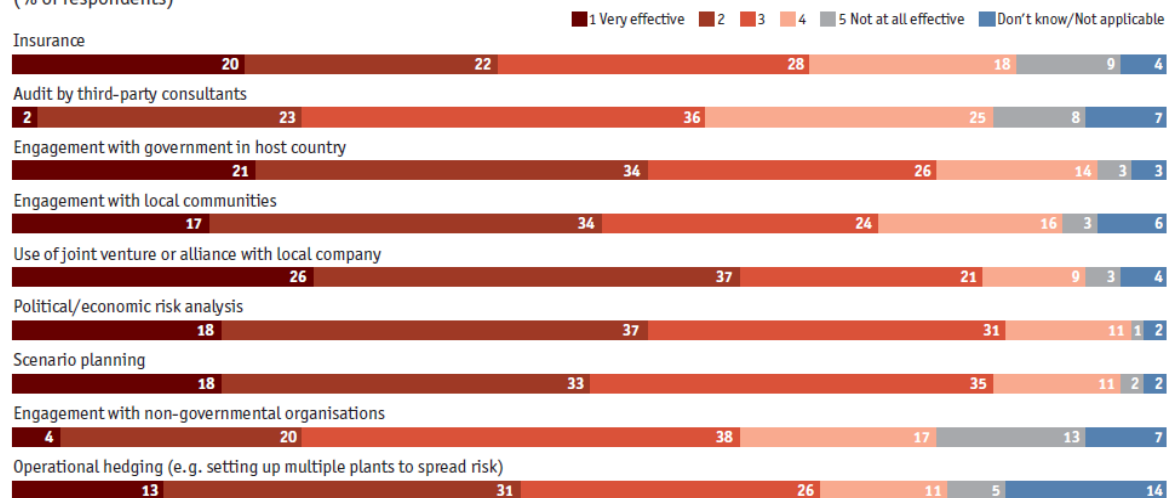
Source: Timor-Leste Poverty Assessment: Poverty in a New Nation Analysis for Action, World Bank, 2003

Exhibit 3 – The General Global Survey about Operating Risks in Emerging Market (2006)

How significant do you consider the following risks to be in the context of your organisation's emerging markets investments?
(% of respondents)



How effective do you think the following techniques are as a means of mitigating political risk in the emerging markets where your organisation operates?
(% of respondents)



Source: Economist Intelligence Unit survey.

Have concerns about political risk in a host country ever caused your organisation to cancel either of the following?
(% of respondents)

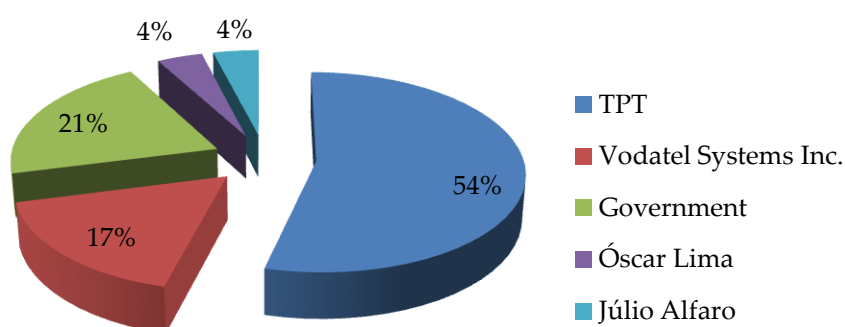


Source: Economist Intelligence Unit 2006 - "Operating Risk in Emerging Markets"

Exhibit 4 – The Final Consortium Structure Applied by PT in East Timor (Disclaimer)

Following PT's internationalization model, East Timor was considered a strategic market for the Group's entry in the Asian market. Despite all the challenges imposed by such investment, PT's final decision relied on the Group's capacity to assume the responsibility of construct and operate the telecommunications infrastructure in East Timor.

Therefore, in the end of 2001, PT delivered a tender's application proposing the following equity structure of Timor Telecom.



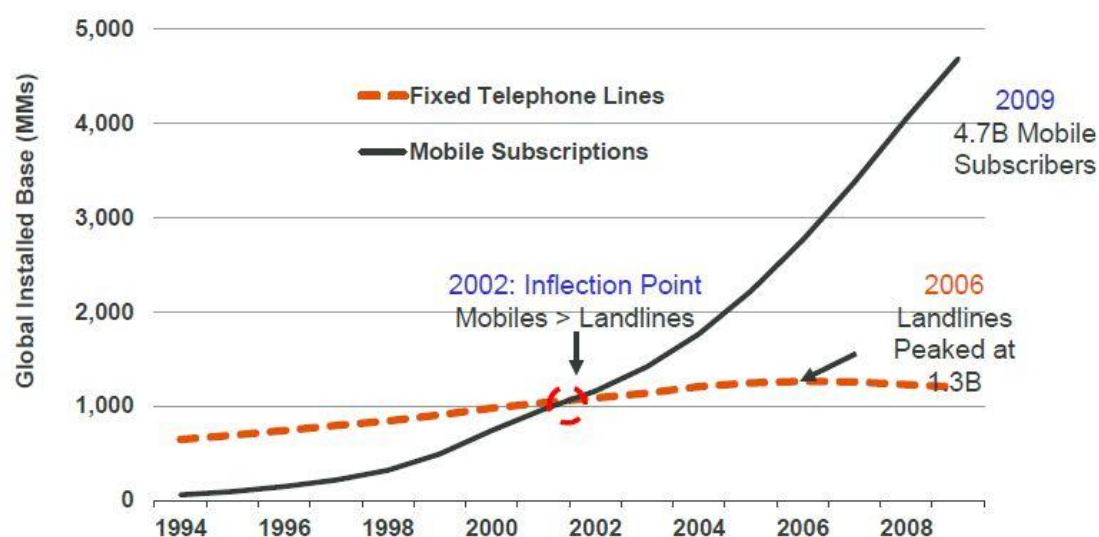
Source: Timor Telecom

TPT stands for “Telecomunicações Públicas de Timor” and it was the name given to the financial vehicle created with the purpose of giving Portugal Telecom a major position in TT's equity.

This company was majorly hold by Portugal Telecom (75%) and the remaining was distributed by Sociedade HAIRII (19%) and Fundação Oriente (6%).

Júlio Alfaro and Óscar Lima were two successful Timorese businessman within the construction sector during the Indonesian occupation. It was also known that they were financial donors and active members of the two biggest political party at the time, CNRT and FRETILIN, respectively.

Exhibit 5 – Mobile Subscriptions vs. Fixed Telephone Line



Source: ITU and World Bank

Exhibit 6 – Benchmarking mobile monthly ARPUS

	Mobile Monthly ARPUS (USD), in 2001
Australia	54,02
Portugal	36,15
Singapore	41,89
Indonesia	18,75

Source: ITU

Exhibit 7 – Benchmarking mobile market penetration

Mobile Market Penetration	1998	1999	2000	2001	2002
Lao PDR	0,13%	0,23%	0,24%	0,55%	1,00%
% growth	0,03%	0,10%	0,01%	0,31%	0,45%
Cambodia (1992)	0,51%	0,73%	1,05%	1,77%	2,96%
% growth	0,22%	0,22%	0,32%	0,72%	1,19%
Indonesia (1992)	0,51%	1,05%	1,72%	3,02%	5,34%
% growth	0,06%	0,54%	0,67%	1,30%	2,32%

Source: ITU

Note: Laos and Cambodia had a similar GDP per capita in 2001, comparing with East Timor. Despite having a larger GDP per capita, Indonesia was chosen due to natural similarities.

Exhibit 8 – Demand of mobile equipment

Subs – number of subscribers in each year.

Net Adds – number of subscribers registered in year i – number of subscribers registered in year (i-1)

Churn – 10% of an average of number of subscribers in year i and year (i-1). It means that 10%⁶⁸ of subscribers stop consuming services.

Gross Adds = Net Adds of year i + Churn of year i

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Subs	18.534	25.921	31.015	36.325	46.532	61.992	78.190	110.178	143.452	188.680	235.913	274.248	303.001	332.442
Net adds	18.534	7.387	5.094	5.310	10.207	15.460	16.198	31.988	33.274	45.228	47.233	38.336	28.752	29.442
Gross adds	20.388	9.609	7.941	8.677	14.350	20.886	23.207	41.406	45.955	61.835	68.462	63.844	57.615	61.214
Churn	1.853	2.223	2.847	3.367	4.143	5.426	7.009	9.418	12.681	16.607	21.230	25.508	28.862	31.772

Source: Author's estimates.

Exhibit 9 – Expected Operational Cost Structure

Operational Costs	Avg % of Total	Interval
SG&A	37%	35% - 40%
Wages & Salaries	6%	5% - 10%
Direct Costs	17%	14% - 19%
COGS	12%	12% - 13%
Marketing & Publicity	2%	2% - 5%
Sales Taxes	14%	11% - 19%

Source: Author's estimates based on information provided by industry professionals.

Direct Costs are interconnection costs between operators, such as roaming, rent of satellite capacity, among others.

⁶⁸ This value was based on PT's experience in Cape Verde, where it also operates as an exclusive services provider.

Exhibit 10 - Projection of Free Cash Flows Map

USD '000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Operational Revenues		8.582	10.395	11.965	13.745	11.181	14.260	17.764	24.855	31.300	40.802	46.359	51.331	54.093	57.075
<i>%growth</i>			21%	15%	15%	-19%	28%	25%	40%	26%	30%	14%	11%	5%	6%
Operational Costs		6.008	7.276	8.137	9.209	7.715	9.554	11.724	15.410	18.780	23.257	25.497	28.232	29.751	31.391
<i>%growth</i>			21%	12%	13%	-16%	24%	23%	31%	22%	24%	10%	11%	5%	6%
EBITDA		2.575	3.118	3.829	4.536	3.466	4.706	6.040	9.445	12.520	17.545	20.861	23.099	24.342	25.684
Margin (%)		30%	30%	32%	33%	31%	33%	34%	38%	40%	43%	45%	45%	45%	45%
Depreciation		1.500	2.200	2.356	2.535	2.742	2.909	3.123	3.390	3.762	4.232	3.344	3.339	3.953	4.585
EBIT		1.075	918	1.473	2.001	725	1.797	2.916	6.055	8.757	13.313	17.517	19.760	20.388	21.098
NOPLAT		752	643	1.031	1.400	507	1.258	2.042	4.239	6.130	9.319	12.262	13.832	14.272	14.769
Depreciation		1.500	2.200	2.356	2.535	2.742	2.909	3.123	3.390	3.762	4.232	3.344	3.339	3.953	4.585
CAPEX	5.000	7.000	1.559	1.795	2.062	1.677	2.139	2.665	3.728	4.695	6.120	6.954	7.700	8.114	8.561
ANWC		(1.287)	(272)	(236)	(267)	385	(462)	(526)	(1.064)	(967)	(1.425)	(834)	(746)	(414)	(447)
Total FCFF	(5.000)	(3.460)	1.556	1.828	2.141	1.187	2.490	3.026	4.964	6.164	8.856	9.486	10.217	10.525	11.240

Source: Author's estimates

Exhibit 11 – Industry Betas

	Raw beta	D/E	Marginal Tax rate	Raw Beta Unlevered
TLKM	1,01	1,57	30%	0,480
DIGI MK	1,59	1,28	28%	0,828
INDOSAT	0,95	1,05	30%	0,549
TEL PM PHP	0,87	2,41	32%	0,331

Raw Betas were taken from Bloomberg. The data encompassed weekly observations of returns from each company and from the S&P500 during 3 years, prior to 2002.

Debt to Equity ratio was also based on Bloomberg information regarding the fiscal year of 2001.

Marginal tax rate presented were the current ones in 2002. Information was retrieved from “KPMG Corporate Tax Rate Survey – January 2002”.

Exhibit 12 – CDS scale basis points, in 2002

Rating	Country Bond (H)
A1	100
A2	125
A3	135
Aa1	75
Aa2	85
Aa3	90
Aaa	0
B1	600
B2	750
B3	850
Ba1	325
Ba2	400
Ba3	525
Baa1	150
Baa2	175
Baa3	200
Caa	900
Ca	1100

These historical spreads represent an average over previous 5 years.

Source: Aswarth Damodaran's website (<http://pages.stern.nyu.edu/~adamodar/>)

Exhibit 13 – Cost of Equity: results using different approaches to determine Country Risk Premium

	CDS Approach	Relative Standard Deviation Approach
Cost of Equity	16,27%	9,66%

Source: Author's estimates

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